

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5500344

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
FRANK DEROSA	08/27/2015
ANUSHA DIAS	09/11/2015
SHRIRANG KARVE	09/09/2015
MICHAEL HEARTLEIN	08/28/2015
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	SHIRE HUMAN GENETIC THERAPIES, INC.
<b>Street Address:</b>	300 SHIRE WAY
<b>City:</b>	LEXINGTON
<b>State/Country:</b>	MASSACHUSETTS
<b>Postal Code:</b>	02421
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16196664
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(617)526-9899
<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>Phone:</b>	6175269635
<b>Email:</b>	sdwhite@proskauer.com
<b>Correspondent Name:</b>	PROSKAUER ROSE LLP
<b>Address Line 1:</b>	ONE INTERNATIONAL PLACE
<b>Address Line 4:</b>	BOSTON, MASSACHUSETTS 02110
<b>ATTORNEY DOCKET NUMBER:</b>	MRT-1134US3
<b>NAME OF SUBMITTER:</b>	CHRISTINE G. ESPINO, PH.D.
<b>SIGNATURE:</b>	/Christine G. Espino/
<b>DATE SIGNED:</b>	04/30/2019
This document serves as an Oath/Declaration (37 CFR 1.63).	
<b>Total Attachments: 7</b>	
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**COMBINED JOINT ASSIGNMENT & DECLARATION****A. ASSIGNMENT**

WHEREAS, each of the below-named inventors whose name and residence is set forth in the following Table 1:

<b>Inventor Name</b>	<b>City, State</b>
<b>1. Frank DeRosa</b>	Chelmsford, Massachusetts
<b>2. Anusha Dias</b>	Lexington, Massachusetts
<b>3. Shrirang Karve</b>	Lexington, Massachusetts
<b>4. Michael Heartlein</b>	Boxborough, Massachusetts

Table 1

hereby declares and agrees, on behalf of himself/herself and all of his/her successors and assigns that each is aware of the patent application(s) entitled:

**METHODS FOR PURIFICATION OF MESSENGER RNA; and**

☒ identified by United States Application Serial No. 14/696140  
filed in the United States Patent and Trademark Office on; April 24, 2015; and

☒ and is also aware of the following priority applications:

<b>Serial No.</b>	<b>Filed</b>
61/984,503	April 25, 2014

WHEREAS **Shire Human Genetic Therapies, Inc.** (hereinafter "ASSIGNEE"), having a usual place of business at **300 Shire Way, Lexington, Massachusetts 02421**, desires to acquire or confirm an interest therein;

NOW, THEREFORE, to all whom it may concern be it known that, in consideration of agreements previously and duly entered into between the parties, and/or for other good and valuable consideration, the receipt of which is hereby acknowledged, each of us has sold, assigned, and transferred and/or do hereby sell, assign, and transfer unto said ASSIGNEE, its successors, assigns, and legal representatives, my entire right, title, and interest in and throughout the United States of America, its territories and all foreign countries, in and to any and all inventions described in the patent application, and/or any priority applications noted above, including any right of priority thereto; and hereby confirm that my sale, assignment and transfer is and was effective at least as of the filing date of the patent application and/or priority application. Our sale, assignment and transfer applies to the above-referenced patent application, and to any application that is based in whole or in part on the patent application, including any divisional, continuing, substitute, renewal, reissue, reexamination and other applications, for

example that claim priority to the patent application. Also, this sale, assignment and transfer pertains to any and all other rights arising under or pursuant to any and all international agreements, treaties, or laws relating to the protection of industrial property, including all rights of priority under the International Convention for the Protection of Industrial Property, and in and to any such patent(s) as may issue thereon including any and all original and reissued patents which have been or shall be issued in the United States and foreign countries; said inventions, applications, and patent(s) to be held and enjoyed by ASSIGNEE for its own use and for its successors, assigns and legal representatives, to the full end of the term for which said patent(s) may be granted as fully and entirely as the same would have been held by each of us had this sale, assignment and transfer not been made;

AND, each of us hereby acknowledges that this Assignment, being of our entire right, title, and interest in and to the inventions, carries with it the right in ASSIGNEE, by attorneys and agents of ASSIGNEE selection, to apply for and receive any and all patent(s) for said inventions in its own name;

AND, each of us hereby further agrees for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the patent(s) to ASSIGNEE, its successors, assignees, and legal representatives, but at its expense and charges, including the execution of application for patents in foreign countries, the execution of substitution, reissue, divisional or continuation applications, and the giving of testimony, preliminary statements, or other statements in any interference or other proceeding in which the inventions or any applications or patents directed to the inventions may be involved by communicating to the ASSIGNEE all facts we know relating to the inventions and their history, and generally by doing everything possible which ASSIGNEE shall consider desirable for aiding in securing and maintaining proper patent protection for the inventions and for vesting title in the inventions and all applications for patent and all patents on the inventions in ASSIGNEE;

AND, each of us further hereby authorizes ASSIGNEE or its attorneys or agents to insert the correct serial number(s) and/or filing date(s) into this assignment document, if appropriate;

AND, each of us hereby appoints ASSIGNEE as our common agent for purposes of prosecuting international patent applications and any national patent applications for which such common agency is recognized;

AND, each of us hereby requests the Commissioner for Patents of the United States Patent and Trademark Office to issue any and all patent(s) as shall be granted upon said application or applications based thereon to ASSIGNEE, its successors, assigns, and legal representatives;

AND, each of us covenants with said ASSIGNEE that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by us, and that full right to convey the same as herein expressed is possessed by us.

**B. DECLARATION (37 CFR 1.63)**

As below named inventors, we hereby declare that:

This declaration is directed to the patent application entitled:

**METHODS FOR PURIFICATION OF MESSENGER RNA; and**

☒ identified by United States Application Serial No. 14/696140  
filed in the United States Patent and Trademark Office on April 24, 2015; or

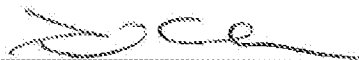
The above-identified application was made or authorized to be made by us.

We believe that we are the original joint inventors of a claimed invention in the application.

We hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

We have reviewed and understand the contents of the application, including the claims and are aware of the duty to disclose to the United States Patent and Trademark Office all information known to be material to patentability as defined in 37 CFR 1.56.

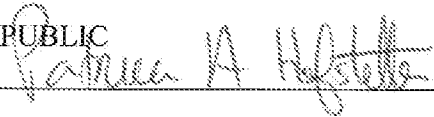
SIGNED this 27<sup>th</sup> day of August, 2015

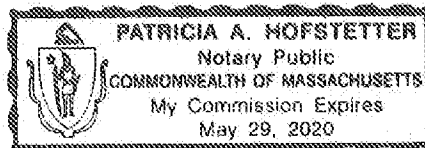
  
Frank DeRosa

STATE OF Massachusetts  
COUNTY OF Middlesex SS.

Before me this 27 day of August, 2015, personally appeared  
Frank DeRosa, and proved to me through satisfactory  
evidence of identity which was license to be the person whose name is  
signed on the preceding or attached document, and acknowledged that he/she executed the  
same, of his/her own free will and for the purposes set forth.

NOTARY PUBLIC

  
Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_



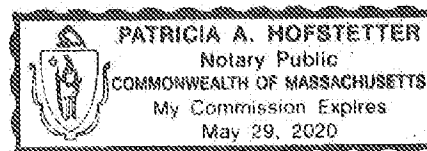
SIGNED this 11 day of Sep., 2015

Anusha Dias  
Anusha Dias

STATE OF Massachusetts  
COUNTY OF Middlesex SS.

Before me this 11 day of September, 2015, personally appeared  
Anusha Dias, and proved to me through satisfactory  
evidence of identity which was license to be the person whose name is  
signed on the preceding or attached document, and acknowledged that he/she executed the  
same, of his/her own free will and for the purposes set forth.

NOTARY PUBLIC  
Patricia A Hofstetter  
Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_



SIGNED this 9 day of September, 20 15

S. S. Karve

Shrirang Karve

STATE OF Massachusetts

SS.

COUNTY OF Middlesex

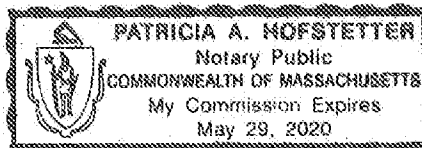
Before me this 9 day of September, 20 15, personally appeared  
Shrirang Karve, and proved to me through satisfactory  
evidence of identity which was None to be the person whose name is  
signed on the preceding or attached document, and acknowledged that he/she executed the  
same, of his/her own free will and for the purposes set forth.

NOTARY PUBLIC

Patricia A. Hofstetter

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

My Commission Expires: \_\_\_\_\_





SIGNED this 28<sup>th</sup> day of August, 2015

[Signature]

Michael Heartlein

STATE OF Massachusetts

SS.

COUNTY OF Middlesex

Before me this 28 day of August, 2015, personally appeared  
Michael Heartlein, and proved to me through satisfactory  
evidence of identity which was license to be the person whose name is  
signed on the preceding or attached document, and acknowledged that he/she executed the  
same, of his/her own free will and for the purposes set forth.

NOTARY PUBLIC

Patricia A. Hofstetter

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

My Commission Expires: \_\_\_\_\_

