

PATENT ASSIGNMENT

Electronic Version v1.1
 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT																								
NATURE OF CONVEYANCE:	ASSIGNMENT																								
CONVEYING PARTY DATA																									
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Michael Heartlein</td> <td>02/29/2012</td> </tr> <tr> <td>Michael Concino</td> <td>03/01/2012</td> </tr> <tr> <td>Paolo Martini</td> <td>03/08/2012</td> </tr> <tr> <td>Muthuraman Meiyappan</td> <td>02/29/2012</td> </tr> <tr> <td>Pericles Calias</td> <td>03/02/2012</td> </tr> <tr> <td>Alla Romashko</td> <td>03/02/2012</td> </tr> <tr> <td>Brian Pescatore</td> <td>03/01/2012</td> </tr> <tr> <td>Lawrence Charnas</td> <td>02/28/2012</td> </tr> <tr> <td>Jan Powell</td> <td>02/29/2012</td> </tr> <tr> <td>Brian Felice</td> <td>02/29/2012</td> </tr> <tr> <td>Nancy Saviolo</td> <td>03/02/2012</td> </tr> </tbody> </table>		Name	Execution Date	Michael Heartlein	02/29/2012	Michael Concino	03/01/2012	Paolo Martini	03/08/2012	Muthuraman Meiyappan	02/29/2012	Pericles Calias	03/02/2012	Alla Romashko	03/02/2012	Brian Pescatore	03/01/2012	Lawrence Charnas	02/28/2012	Jan Powell	02/29/2012	Brian Felice	02/29/2012	Nancy Saviolo	03/02/2012
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RECEIVING PARTY DATA																									
Name:	Shire Human Genetic Therapies, Inc.																								
Street Address:	300 Shire Way																								
City:	Lexington																								
State/Country:	MASSACHUSETTS																								
Postal Code:	02421																								
PROPERTY NUMBERS Total: 1																									
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13967050</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13967050																				
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Application Number:	13967050																								
CORRESPONDENCE DATA																									
Fax Number:	6175025002																								
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>																									
Phone:	617-248-5000																								
Email:	patentdocket@choate.com																								
Correspondent Name:	Choate, Hall & Stewart LLP																								

OP \$40.00 13967050

Address Line 1: Two International Place
Address Line 4: Boston, MASSACHUSETTS 02110

ATTORNEY DOCKET NUMBER:	2011080-0008
NAME OF SUBMITTER:	Fangli Chen, PhD, JD
Signature:	/Fangli Chen/
Date:	08/14/2013

Total Attachments: 13

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JOINT ASSIGNMENT

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

Inventor Name	City, State Zip
1. Michael Heartlein	Boxborough, MA 01719
2. Michael Concino	Bolton, MA 01740
3. Paolo Martini	Boston, MA 02118
4. Muthuraman Meiyappan	Jamaica Plain, MA 02130
5. Pericles Calias	Melrose, MA 02176
6. Alla Romashko	Lexington, MA 02420
7. Brian Pescatore	Beverly, MA 01915
8. Lawrence Charnas	Natick, MA 01760
9. Jan Powell	Concord, MA 01742
10. Brian Felice	Wellesley, MA 02482
11. Nancy Savioli	Billerica, MA 01826

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 applications entitled:

METHODS FOR TREATING LYSOSOMAL ACID LIPASE DEFICIENCY; and

prepared for filing in the United States Patent and Trademark Office; or

identified by United States Application Serial No. **PCT/US12/25239** filed in the United States Patent and Trademark Office on **February 15, 2012**; and

and is also aware of the following priority applications:

Serial No.: USSN 61/443,179; Filed: February 15, 2011

WHEREAS **Shire Human Genetic Therapies, Inc.** (hereinafter "ASSIGNEE"), having a usual place of business at **300 Shire Way, Lexington, MA 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, I have 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; and hereby confirm that my sale, assignment, and/or transfer is and was effective at least as of the filing date

of the patent application and/or priority application. My sale, assignment and/or 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 to divisional, continuing, substitute, renewal, reissue, reexamination and other applications, for example that claim priority to the patent application. Also, this sale, assignment, 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 me had this sale, assignment and transfer not been made;

AND, I hereby acknowledge that this Assignment, being of my 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, I hereby further agree for myself and my 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 I 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, I further hereby authorize 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, I hereby appoint ASSIGNEE as my common agent for purposes of prosecuting international patent applications and any national patent applications for which such common agency is recognized;

AND, I hereby request the Director of Patents and Trademarks of the United States 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, I covenant 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 me, and that full right to convey the same as herein expressed is possessed by me.

SIGNED this 29th day of February, 20 12

[Handwritten Signature]

Name: Michael Heartlein

STATE OF Massachusetts SS.

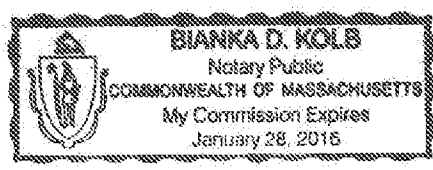
COUNTY OF Middlesex

Before me this 29th day of February, 20 12, personally appeared Michael Heartlein, and proved to me through satisfactory evidence of identity which was known to me 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 *[Handwritten Signature]*

Name: Bianka Kols

My Commission Expires: Jan. 28, 2016



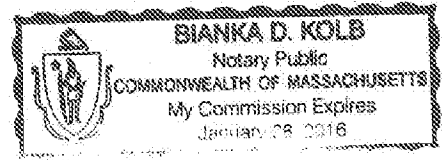
SIGNED this 1st day of March, 2012.

Michael Concino
Name: Michael Concino

STATE OF Massachusetts SS.
COUNTY OF Middlesex

Before me this 1st day of March, 2012, personally appeared Michael Concino, and proved to me through satisfactory evidence of identity which was shown to me 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 Bianka Kolb
Name: Bianka Kolb
My Commission Expires: Jan. 28, 2016



SIGNED this 8th day of March, 2012.

[Handwritten signature]

Name: Paolo Martini

STATE OF Massachusetts SS.

COUNTY OF Middlesex

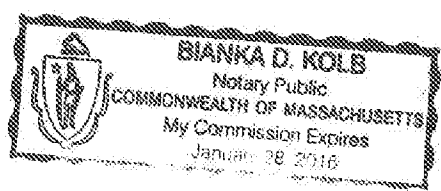
Before me this 8th day of March, 2012, personally appeared Paolo Martini, and proved to me through satisfactory evidence of identity which was UNKNOWN TO ME to be the person whose name is signed on the preceding or attached document, and acknowledged that he/she executed the same, of his/her own free will and for the purposes set forth.

NOTARY PUBLIC

[Handwritten signature]

Name: Bianka Kolb

My Commission Expires: Jan. 28, 2016



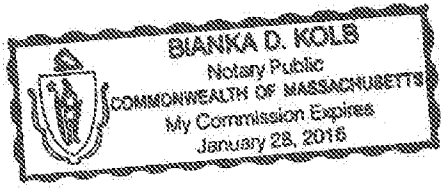
SIGNED this 29 day of February, 2012.

[Signature]
Name: Muthuraman Meiyappan

STATE OF Massachusetts SS.
COUNTY OF Middlesex

Before me this 29th day of February, 2012, personally appeared Muthuraman Meiyappan, and proved to me through satisfactory evidence of identity which was shown to me 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 [Signature]
Name: Bianka Kols
My Commission Expires: Jan. 28, 2016



SIGNED this 2 day of March, 2012.


Name: Pericles Callias

STATE OF Massachusetts SS.

COUNTY OF Middlesex

Before me this 2nd day of March, 2012, personally appeared Pericles Callias, and proved to me through satisfactory evidence of identity which was known to me 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.

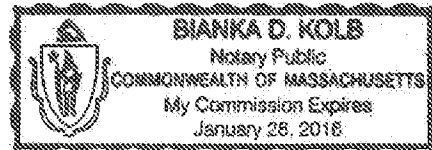
NOTARY PUBLIC

Name:


Bianka Kolb

My Commission Expires:

Jan. 28, 2016



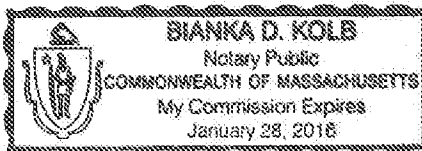
SIGNED this 2nd day of March, 2012

A. Romashko
Name: **Alla Romashko**

STATE OF Massachusetts SS.
COUNTY OF Middlesex

Before me this 2nd day of March, 2012, personally appeared **Alla Romashko**, and proved to me through satisfactory evidence of identity which was shown to me 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 Bianka Kolb
Name: Bianka Kolb
My Commission Expires: Jan. 28, 2016



SIGNED this 01 day of March, 2012

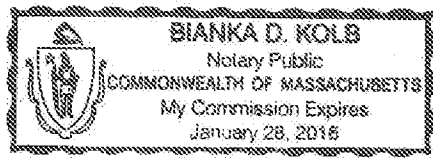
[Signature]
Name: Brian Pescatore

STATE OF Massachusetts SS.

COUNTY OF Middlesex

Before me this 1st day of March, 2012, personally appeared Brian Pescatore, and proved to me through satisfactory evidence of identity which was known to me 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 [Signature]
Name: Bianka Kolb
My Commission Expires: Jan. 28, 2016



SIGNED this 28th day of February, 2012

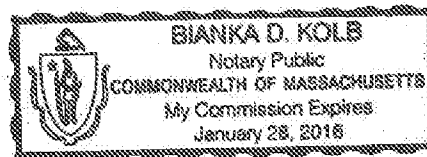
Lawrence Charnas
Name: Lawrence Charnas

STATE OF Massachusetts SS.

COUNTY OF Windsor

Before me this 28th day of February, 2012, personally appeared Lawrence Charnas, and proved to me through satisfactory evidence of identity which was known to me 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 Bianka Kolb
Name: Bianka Kolb
My Commission Expires: Jan - 28, 2016



SIGNED this 29 day of FEBRUARY, 2012.



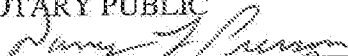
Name: Jan Powell

STATE OF MASSACHUSETTS SS.

COUNTY OF MIDDLESEX

Before me this 29th day of February, 2012, personally appeared Jan Powell, and proved to me through satisfactory evidence of identity which was MA Drivers 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.

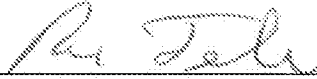
NOTARY PUBLIC



Name: Nancy L. Pearson

My Commission Expires: Dec 8, 2017

SIGNED this 29 day of Feb., 2012.



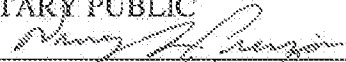
Name: Brian Felice

STATE OF MASSACHUSETTS SS.

COUNTY OF MIDDLESEX

Before me this 29th day of February, 2012, personally appeared Brian Felice, and proved to me through satisfactory evidence of identity which was copy of MA Drivers License 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: Nancy L. Pearson

My Commission Expires: Dec 8, 2017

SIGNED this 03 day of March, 2013.



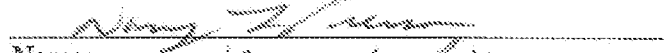
Name: Nancy Savioli

STATE OF Massachusetts SS.

COUNTY OF Middlesex

Before me this 2nd day of March, 2013, personally appeared Nancy Savioli, and proved to me through satisfactory evidence of identity which was MA Driver 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: Nancy E. Peterson
My Commission Expires: Dec 8, 2017