

**PATENT ASSIGNMENT**

Electronic Version v1.1  
 Stylesheet Version v1.1

|   |                                     |
|---|-------------------------------------|
| <b>SUBMISSION TYPE:</b>   | NEW ASSIGNMENT                      |
| <b>NATURE OF CONVEYANCE:</b>  | ASSIGNMENT                          |
| <b>CONVEYING PARTY DATA</b>   |                                     |
| <b>Name</b>   | <b>Execution Date</b>               |
| Xiaoqing Yang   | 07/07/2010                          |
| Sara S. Hadida Ruah   | 06/09/2010                          |
| Fredrick F. Van Goor  | 05/24/2010                          |
| Martyn C. Botfield  | 06/25/2010                          |
| Gregor Zlokarnik  | 06/09/2010                          |
| Peter D.J. Grootenhuis  | 03/19/2010                          |
| <b>RECEIVING PARTY DATA</b>   |                                     |
| <b>Name:</b>  | Vertex Pharmaceuticals Incorporated |
| <b>Street Address:</b>  | 130 Waverly Street                  |
| <b>City:</b>  | Cambridge                           |
| <b>State/Country:</b>   | MASSACHUSETTS                       |
| <b>Postal Code:</b>   | 02139                               |
| <b>PROPERTY NUMBERS Total: 1</b>  |                                     |
| <b>Property Type</b>  | <b>Number</b>                       |
| <b>Application Number:</b>  | 13237303                            |
| <b>CORRESPONDENCE DATA</b>  |                                     |
| <b>Fax Number:</b>  | (269)337-7894                       |
| <b>Phone:</b>   | 2693377700                          |
| <b>Email:</b>   | mguyman@honigman.com                |
| <i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.</i> |                                     |
| <b>Correspondent Name:</b>  | Jonathan P. O'Brien, Ph.D.          |
| <b>Address Line 1:</b>  | 350 East Michigan Avenue, Suite 300 |
| <b>Address Line 4:</b>  | Kalamazoo, MICHIGAN 49007           |
| <b>ATTORNEY DOCKET NUMBER:</b>  | 223306/08-151USWCN/316425           |

CH \$40.00 13237303

501717216

**PATENT**  
**REEL: 027193 FRAME: 0150**

NAME OF SUBMITTER:

Michele Guyman

**Total Attachments: 27**

source=08151WO\_assignment#page1.tif  
source=08151WO\_assignment#page2.tif  
source=08151WO\_assignment#page3.tif  
source=08151WO\_assignment#page4.tif  
source=08151WO\_assignment#page5.tif  
source=08151WO\_assignment#page6.tif  
source=08151WO\_assignment#page7.tif  
source=08151WO\_assignment#page8.tif  
source=08151WO\_assignment#page9.tif  
source=08151WO\_assignment#page10.tif  
source=08151WO\_assignment#page11.tif  
source=08151WO\_assignment#page12.tif  
source=08151WO\_assignment#page13.tif  
source=08151WO\_assignment#page14.tif  
source=08151WO\_assignment#page15.tif  
source=08151WO\_assignment#page16.tif  
source=08151WO\_assignment#page17.tif  
source=08151WO\_assignment#page18.tif  
source=08151WO\_assignment#page19.tif  
source=08151WO\_assignment#page20.tif  
source=08151WO\_assignment#page21.tif  
source=08151WO\_assignment#page22.tif  
source=08151WO\_assignment#page23.tif  
source=08151WO\_assignment#page24.tif  
source=08151WO\_assignment#page25.tif  
source=08151WO\_assignment#page26.tif  
source=08151WO\_assignment#page27.tif

**ASSIGNMENT**

We,

- (1) Xiaoqing Yang, of 4526 Vereda Mar de Ponderosa, San Diego, CA 92130;
- (2) Sara S. Hadida Ruah, of 2356 Torrey Pines Road, #16, La Jolla, CA 92037;
- (3) Peter D.J. Grootenhuis, of 4801 Riding Ridge Road, San Diego, CA 92130;
- (4) Fredrick F. van Goor, of 832 Ormond Court, San Diego, CA 92109;
- (5) Martyn C. Bötfield, of 47 Walden Terrace, Concord, MA 01742; and
- (6) Gregor Zlokarnik, of 2754 Palomino Circle, La Jolla, CA 92037;

for good and valuable consideration, receipt of which is hereby acknowledged, have assigned, sold and transferred to, by virtue of our agreement with Vertex Pharmaceuticals Incorporated and do hereby assign, sell and transfer to, Vertex Pharmaceuticals Incorporated, a corporation organized and existing under the laws of the Commonwealth of Massachusetts and having an office and a place of business at 130 Waverly Street, Cambridge, MA 02139, its successors and assigns, all hereinafter referred to as the ASSIGNEE:

(1) the entire right, title and interest in the United States and in all countries throughout the world in and to any and all of my/our inventions, and discoveries disclosed in:

(a) the International Patent Application entitled: MODULATORS OF CYSTIC FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR, filed under the Patent Cooperation Treaty in the United States Receiving Office on March 19, 2010, under Application No. PCT/US2010/028062, and designating all countries, including any renewals, revivals, reissues, reexaminations, extensions, continuations and divisions thereof, and any substitute applications therefor;

(2) the full and complete right to file patent applications in the name of the ASSIGNEE, its designee, or in my/our names at the election of the ASSIGNEE or its designee, on the aforesaid inventions, discoveries and applications in the United States and in any other country of the world;

(3) the entire right, title and interest in and to any Letters Patent which may issue thereon in the United States or in any other country of the world, and in and to any renewals, revivals, reissues, reexaminations, extensions, continuations and divisions thereof; and

(4) the entire right, title and interest in and to all Convention and Treaty Rights of all kinds thereon, including without limitation all rights of priority in any country of the world, in

and to the above inventions, discoveries and applications including, but not limited to, the following priority application(s):

| 61/162,130<br>Application No. | US<br>Country | March 20, 2009<br>Filing Date |
|-------------------------------|---------------|-------------------------------|
|-------------------------------|---------------|-------------------------------|

and all rights of priority in any country of the world deriving from the above-identified International Patent Application.

We hereby authorize and request the competent authorities to grant and to issue any and all such Letters Patent in the United States and throughout the world to the ASSIGNEE of the entire right, title and interest therein, as fully and entirely as the same would have been held and enjoyed by me/us had this assignment, sale and transfer not been made.

We agree, at any time, upon the request of the ASSIGNEE to execute and to deliver to the ASSIGNEE any additional applications for patents for said inventions and discoveries, or any part or parts thereof, and any applications for patents of confirmation, registration and importation based on any Letters Patent issuing on said inventions, discoveries or applications, and divisions, continuations, renewals, revivals, reissues, reexaminations and extensions thereof.

We further agree at any time to execute and to deliver upon request of the ASSIGNEE such additional documents, if any, as are necessary or desirable to secure patent protection on said inventions, discoveries and applications throughout all countries of the world, and otherwise to do the necessary to give full effect to and to perfect the rights of the ASSIGNEE under this Assignment, including the execution, delivery and procurement of any and all further documents evidencing this assignment, transfer and sale as may be necessary or desirable.

Xiaoqing Yang  
Xiaoqing Yang

Date: July 7, 2010

IN WITNESS WHEREOF, I have hereunto set hand and seal

Signature of witness: (1) [Signature]

Printed Name of Witness: ORLANDO CASINO

this 7<sup>th</sup> day of JULY 2010  
Date of signing

IN WITNESS WHEREOF, I have hereunto set hand and seal

Signature of witness: (2) [Signature]

Printed Name of Witness: Chun Yang

this 7<sup>th</sup> day of July 2010  
Date of signing

\_\_\_\_\_  
Sara S. Hadida Ruah

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

State of California

County of \_\_\_\_\_)

On \_\_\_\_\_ before me, \_\_\_\_\_  
(insert name and title of the officer)

personally appeared Sara S. Hadida Ruah, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature \_\_\_\_\_ (Seal)

\_\_\_\_\_  
Peter D.J. Grootenhuis

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

State of California

County of \_\_\_\_\_)

On \_\_\_\_\_ before me, \_\_\_\_\_  
(insert name and title of the officer)

personally appeared Peter D.J. Grootenhuis, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature \_\_\_\_\_ (Seal)

\_\_\_\_\_  
Fredrick F. van Goor

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

State of California

County of \_\_\_\_\_ )

On \_\_\_\_\_ before me, \_\_\_\_\_  
(insert name and title of the officer)

personally appeared Fredrick F. van Goor, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature \_\_\_\_\_ (Seal)

\_\_\_\_\_  
Martyn C. Botfield

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

Commonwealth of Massachusetts  
County of \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, 2010, before me, the undersigned notary public, personally appeared Martyn C. Botfield, proved to me through satisfactory evidence of identification which was/were:  personal knowledge of identity,  a driver's license,  other (please identify) \_\_\_\_\_, to be the person whose name is signed on this document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.

\_\_\_\_\_  
Notary Public  
My Commission Expires: \_\_\_\_\_

\_\_\_\_\_  
Gregor Zlokarnik

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

State of California

County of \_\_\_\_\_)

On \_\_\_\_\_ before me, \_\_\_\_\_  
(insert name and title of the officer)

personally appeared Gregor Zlokarnik, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature \_\_\_\_\_ (Seal)

ACKNOWLEDGMENT OF ASSIGNEE

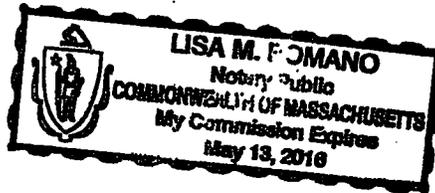
By: [Signature]  
Stephen Nesbitt  
Chief Patent Counsel  
VERTEX PHARMACEUTICALS INCORPORATED

Date: July 16, 2010

Commonwealth of Massachusetts  
County of Middlesex

On this 16<sup>th</sup> day of July, 2010, before me, the undersigned notary public, personally appeared Stephen Nesbitt (name of document signer), proved to me through satisfactory evidence of identification which was/were:  personal knowledge of identity,  a driver's license,  other (please identify) \_\_\_\_\_, to be the person whose name is signed on this document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.

[Signature]  
Notary Public: Lisa M. Romano  
My Commission Expires: 5-13-2016



**ASSIGNMENT**

**We,**

- (1) Xiaoqing Yang, of 4526 Vereda Mar de Ponderosa, San Diego, CA 92130;**
- (2) Sara S. Hadida Ruah, of 2356 Torrey Pines Road, #16, La Jolla, CA 92037;**
- (3) Peter D.J. Grootenhuis, of 4801 Riding Ridge Road, San Diego, CA 92130;**
- (4) Fredrick F. van Goor, of 832 Ormond Court, San Diego, CA 92109;**
- (5) Martyn C. Botfield, of 47 Walden Terrace, Concord, MA 01742; and**
- (6) Gregor Zlokarnik, of 2754 Palomino Circle, La Jolla, CA 92037;**

**for good and valuable consideration, receipt of which is hereby acknowledged, have assigned, sold and transferred to, by virtue of our agreement with Vertex Pharmaceuticals Incorporated and do hereby assign, sell and transfer to, Vertex Pharmaceuticals Incorporated, a corporation organized and existing under the laws of the Commonwealth of Massachusetts and having an office and a place of business at 130 Waverly Street, Cambridge, MA 02139, its successors and assigns, all hereinafter referred to as the ASSIGNEE:**

**(1) the entire right, title and interest in the United States and in all countries throughout the world in and to any and all of my/our inventions, and discoveries disclosed in:**

**(a) the International Patent Application entitled: MODULATORS OF CYSTIC FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR, filed under the Patent Cooperation Treaty in the United States Receiving Office on March 19, 2010, under Application No. PCT/US2010/028062, and designating all countries, including any renewals, revivals, reissues, reexaminations, extensions, continuations and divisions thereof, and any substitute applications therefor;**

**(2) the full and complete right to file patent applications in the name of the ASSIGNEE, its designee, or in my/our names at the election of the ASSIGNEE or its designee, on the aforesaid inventions, discoveries and applications in the United States and in any other country of the world;**

**(3) the entire right, title and interest in and to any Letters Patent which may issue thereon in the United States or in any other country of the world, and in and to any renewals, revivals, reissues, reexaminations, extensions, continuations and divisions thereof; and**

**(4) the entire right, title and interest in and to all Convention and Treaty Rights of all kinds thereon, including without limitation all rights of priority in any country of the world, in**

and to the above inventions, discoveries and applications including, but not limited to, the following priority application(s):

|                 |         |                |
|-----------------|---------|----------------|
| 61/162,130      | US      | March 20, 2009 |
| Application No. | Country | Filing Date    |

and all rights of priority in any country of the world deriving from the above-identified International Patent Application.

We hereby authorize and request the competent authorities to grant and to issue any and all such Letters Patent in the United States and throughout the world to the ASSIGNEE of the entire right, title and interest therein, as fully and entirely as the same would have been held and enjoyed by me/us had this assignment, sale and transfer not been made.

We agree, at any time, upon the request of the ASSIGNEE to execute and to deliver to the ASSIGNEE any additional applications for patents for said inventions and discoveries, or any part or parts thereof, and any applications for patents of confirmation, registration and importation based on any Letters Patent issuing on said inventions, discoveries or applications, and divisions, continuations, renewals, revivals, reissues, reexaminations and extensions thereof.

We further agree at any time to execute and to deliver upon request of the ASSIGNEE such additional documents, if any, as are necessary or desirable to secure patent protection on said inventions, discoveries and applications throughout all countries of the world, and otherwise to do the necessary to give full effect to and to perfect the rights of the ASSIGNEE under this Assignment, including the execution, delivery and procurement of any and all further documents evidencing this assignment, transfer and sale as may be necessary or desirable.

\_\_\_\_\_  
Xiaoqing Yang

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

IN WITNESS WHEREOF, I have hereunto set hand and seal

Signature of witness: (1) \_\_\_\_\_

Printed Name of Witness: \_\_\_\_\_

this \_\_\_\_\_ day of \_\_\_\_\_  
Date of signing

IN WITNESS WHEREOF, I have hereunto set hand and seal

Signature of witness: (2) \_\_\_\_\_

Printed Name of Witness: \_\_\_\_\_

this \_\_\_\_\_ day of \_\_\_\_\_  
Date of signing

S. Hadida

Sara S. Hadida Ruah

Date: 6/9/2010

State of California

County of San Diego

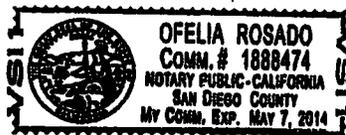
On June 9<sup>th</sup>, 2010 before me, OFELIA ROSADO-NOTARY PUBLIC  
(insert name and title of the officer)

personally appeared Sara S. Hadida Ruah, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Ofelia Rosado (Seal)



\_\_\_\_\_  
Peter D.J. Grootenhuis

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

State of California

County of \_\_\_\_\_ )

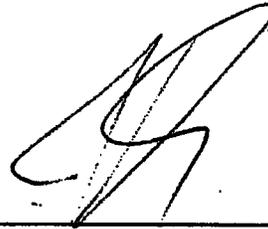
On \_\_\_\_\_ before me, \_\_\_\_\_  
(insert name and title of the officer)

personally appeared Peter D.J. Grootenhuis, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature \_\_\_\_\_ (Seal)



\_\_\_\_\_  
Fredrick F. van Goor

Date: May 24 2010

State of California

County of San Diego

On May 24<sup>th</sup>, 2010 before me, OFELIA ROSADO-NOTARY PUBLIC  
(insert name and title of the officer)

personally appeared Fredrick F. van Goor, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Ofelia Rosado (Seal)

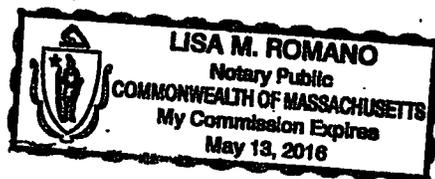


Martyn C. Botfield  
Martyn C. Botfield  
Date: 25 JUNE 2010

Commonwealth of Massachusetts  
County of Middlesex

On this 25<sup>th</sup> day of June, 2010, before me, the undersigned notary public, personally appeared Martyn C. Botfield, proved to me through satisfactory evidence of identification which was/were:  personal knowledge of identity,  a driver's license,  other (please identify) \_\_\_\_\_, to be the person whose name is signed on this document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.

Lisa M. Romano  
Notary Public: Lisa M. Romano  
My Commission Expires: 5-13-2016



*g Zlok*

Gregor Zlokarnik

Date: June 9<sup>th</sup>, 2010

State of California

County of San Diego

On June 9<sup>th</sup>, 2010 before me, OFELIA ROSADO-NOTARY PUBLIC  
(insert name and title of the officer)

personally appeared Gregor Zlokarnik, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature *Ofelia Rosado* (Seal)



ACKNOWLEDGMENT OF ASSIGNEE

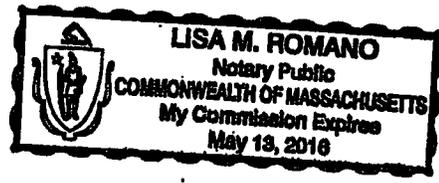
By: [Signature]  
Stephen Nesbitt  
Chief Patent Counsel  
VERTEX PHARMACEUTICALS INCORPORATED

Date: July 16, 2010

Commonwealth of Massachusetts  
County of Middlesex

On this 16<sup>th</sup> day of July, 2010, before me, the undersigned notary public, personally appeared Stephen Nesbitt (name of document signer), proved to me through satisfactory evidence of identification which was/were:  personal knowledge of identity,  a driver's license,  other (please identify) \_\_\_\_\_, to be the person whose name is signed on this document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.

[Signature]  
Notary Public: Lisa M. Romano  
My Commission Expires: 5-13-2016



**ASSIGNMENT**

We,

- (1) Xiaoqing Yang, of 4526 Vereda Mar de Ponderosa, San Diego, CA 92130;
- (2) Sara S. Hadida Ruah, of 2356 Torrey Pines Road, #16, La Jolla, CA 92037;
- (3) Peter D.J. Grootenhuis, of 4801 Riding Ridge Road, San Diego, CA 92130;
- (4) Fredrick F. van Goor, of 832 Ormond Court, San Diego, CA 92109;
- (5) Martyn C. Botfield, of 47 Walden Terrace, Concord, MA 01742; and
- (6) Gregor Zlokarnik, of 2754 Palomino Circle, La Jolla, CA 92037;

for good and valuable consideration, receipt of which is hereby acknowledged, have assigned, sold and transferred to, by virtue of our agreement with Vertex Pharmaceuticals Incorporated and do hereby assign, sell and transfer to, Vertex Pharmaceuticals Incorporated, a corporation organized and existing under the laws of the Commonwealth of Massachusetts and having an office and a place of business at 130 Waverly Street, Cambridge, MA 02139, its successors and assigns, all hereinafter referred to as the ASSIGNEE:

(1) the entire right, title and interest in the United States and in all countries throughout the world in and to any and all of my/our inventions, and discoveries disclosed in:

(a) the International Patent Application entitled: MODULATORS OF CYSTIC FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR, filed under the Patent Cooperation Treaty in the United States Receiving Office on March 19, 2010, under Application No. PCT/US2010/028062, and designating all countries, including any renewals, revivals, reissues, reexaminations, extensions, continuations and divisions thereof, and any substitute applications therefor;

(2) the full and complete right to file patent applications in the name of the ASSIGNEE, its designee, or in my/our names at the election of the ASSIGNEE or its designee, on the aforesaid inventions, discoveries and applications in the United States and in any other country of the world;

(3) the entire right, title and interest in and to any Letters Patent which may issue thereon in the United States or in any other country of the world, and in and to any renewals, revivals, reissues, reexaminations, extensions, continuations and divisions thereof; and

(4) the entire right, title and interest in and to all Convention and Treaty Rights of all kinds thereon, including without limitation all rights of priority in any country of the world, in

and to the above inventions, discoveries and applications including, but not limited to, the following priority application(s):

|                 |         |                |
|-----------------|---------|----------------|
| 61/162,130      | US      | March 20, 2009 |
| Application No. | Country | Filing Date    |

and all rights of priority in any country of the world deriving from the above-identified International Patent Application.

We hereby authorize and request the competent authorities to grant and to issue any and all such Letters Patent in the United States and throughout the world to the ASSIGNEE of the entire right, title and interest therein, as fully and entirely as the same would have been held and enjoyed by me/us had this assignment, sale and transfer not been made.

We agree, at any time, upon the request of the ASSIGNEE to execute and to deliver to the ASSIGNEE any additional applications for patents for said inventions and discoveries, or any part or parts thereof, and any applications for patents of confirmation, registration and importation based on any Letters Patent issuing on said inventions, discoveries or applications, and divisions, continuations, renewals, revivals, reissues, reexaminations and extensions thereof.

We further agree at any time to execute and to deliver upon request of the ASSIGNEE such additional documents, if any, as are necessary or desirable to secure patent protection on said inventions, discoveries and applications throughout all countries of the world, and otherwise to do the necessary to give full effect to and to perfect the rights of the ASSIGNEE under this Assignment, including the execution, delivery and procurement of any and all further documents evidencing this assignment, transfer and sale as may be necessary or desirable.

\_\_\_\_\_  
Xiaoqing Yang

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

**IN WITNESS WHEREOF, I have hereunto set hand and seal**

**Signature of witness: (1)** \_\_\_\_\_

**Printed Name of Witness:** \_\_\_\_\_

**this** \_\_\_\_\_ **day of** \_\_\_\_\_  
**Date of signing**

**IN WITNESS WHEREOF, I have hereunto set hand and seal**

**Signature of witness: (2)** \_\_\_\_\_

**Printed Name of Witness:** \_\_\_\_\_

**this** \_\_\_\_\_ **day of** \_\_\_\_\_  
**Date of signing**

\_\_\_\_\_  
Sara S. Hadida Ruah

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

State of California

County of \_\_\_\_\_ )

On \_\_\_\_\_ before me, \_\_\_\_\_  
(insert name and title of the officer)

personally appeared Sara S. Hadida Ruah, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature \_\_\_\_\_ (Seal)



Peter D.J. Grootenhuis

Date: 3/19/2010

State of California

County of San Diego

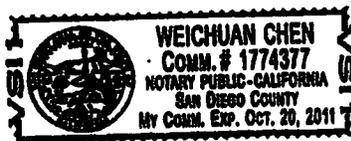
On March 19, 2010 before me, Weichuan Chen  
(insert name and title of the officer)

personally appeared Peter D.J. Grootenhuis, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature  (Seal)



\_\_\_\_\_  
Fredrick F. van Goor

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

State of California

County of \_\_\_\_\_)

On \_\_\_\_\_ before me, \_\_\_\_\_  
(insert name and title of the officer)

personally appeared Fredrick F. van Goor, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature \_\_\_\_\_ (Seal)

\_\_\_\_\_  
Martyn C. Botfield

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

Commonwealth of Massachusetts  
County of \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, 2010, before me, the undersigned notary public, personally appeared Martyn C. Botfield, proved to me through satisfactory evidence of identification which was/were:  personal knowledge of identity,  a driver's license,  other (please identify) \_\_\_\_\_, to be the person whose name is signed on this document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.

\_\_\_\_\_  
Notary Public  
My Commission Expires: \_\_\_\_\_

\_\_\_\_\_  
Gregor Zlokarnik

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

State of California

County of \_\_\_\_\_)

On \_\_\_\_\_ before me, \_\_\_\_\_  
(insert name and title of the officer)

personally appeared Gregor Zlokarnik, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature \_\_\_\_\_ (Seal)

ACKNOWLEDGMENT OF ASSIGNEE

By: Stephen Nesbitt  
Stephen Nesbitt  
Chief Patent Counsel  
VERTEX PHARMACEUTICALS INCORPORATED

Date: July 16, 2010

Commonwealth of Massachusetts  
County of Middlesex

On this 16<sup>th</sup> day of July, 2010, before me, the undersigned notary public, personally appeared Stephen Nesbitt (name of document signer), proved to me through satisfactory evidence of identification which was/were:  personal knowledge of identity,  a driver's license,  other (please identify) \_\_\_\_\_, to be the person whose name is signed on this document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.

Lisa M. Romano  
Notary Public: Lisa M. Romano  
My Commission Expires: 5-13-2016

