503983758 08/30/2016

PATENT ASSIGNMENT COVER SHEET

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|-----------------------------|----------------|
| YEEMAN K. RAMTOHUL | 01/22/2014 |
| SANJOY KUMAR DAS | 01/06/2014 |
| CAROLINE CADILHAC | 01/06/2014 |
| THUMKUNTA JAGADEESWAR REDDY | 01/06/2014 |
| LOUIS VAILLANCOURT | 01/06/2014 |
| MICHEL GALLANT | 01/06/2014 |
| BINGCAN LIU | 01/06/2014 |
| EVELYNE DIETRICH | 01/06/2014 |
| FREDERIC VALLEE | 01/06/2014 |
| JULIEN MARTEL | 01/06/2014 |
| CARL POISSON | 12/18/2013 |

RECEIVING PARTY DATA

| Name: | VERTEX PHARMACEUTICALS (CANADA) INCORPORATED |
|-------------------|--|
| Street Address: | 275 ARMAND-FRAPPIER BLVD. |
| Internal Address: | LAVAL |
| City: | QUEBEC |
| State/Country: | CANADA |
| Postal Code: | H7V 4A7 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 15140045 |

CORRESPONDENCE DATA

(617)720-9601 Fax Number:

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.

Phone: (617) 720-9600

Email: bwptopat@bannerwitcoff.com, dfreitas@bannerwitcoff.com

BANNER & WITCOFF, LTD. **Correspondent Name:**

Address Line 1: 28 STATE STREET

Address Line 2: **SUITE 1800**

REEL: 039586 FRAME: 0549 503983758

PATENT -

| Address Line 4: BOS | BOSTON, MASSACHUSETTS 02109 | |
|-------------------------|-----------------------------|--|
| ATTORNEY DOCKET NUMBER: | 007534.00077\US | |
| NAME OF SUBMITTER: | JOHN P. IWANICKI | |
| SIGNATURE: | /John P. Iwanicki/ | |
| DATE SIGNED: | 08/30/2016 | |

Total Attachments: 15

source=Assignment_InventorsToCanada#page1.tif source=Assignment_InventorsToCanada#page2.tif source=Assignment_InventorsToCanada#page3.tif source=Assignment_InventorsToCanada#page4.tif source=Assignment_InventorsToCanada#page5.tif source=Assignment_InventorsToCanada#page6.tif source=Assignment_InventorsToCanada#page7.tif source=Assignment_InventorsToCanada#page8.tif source=Assignment_InventorsToCanada#page9.tif source=Assignment_InventorsToCanada#page10.tif source=Assignment_InventorsToCanada#page11.tif source=Assignment_InventorsToCanada#page12.tif source=Assignment_InventorsToCanada#page13.tif source=Assignment_InventorsToCanada#page13.tif source=Assignment_InventorsToCanada#page14.tif source=Assignment_InventorsToCanada#page15.tif

PATENT REEL: 039586 FRAME: 0550

ASSIGNMENT

We,

- (1) Yeeman K. Ramtohul, of Pierrefonds, Quebec, Canada;
- (2) Sanjoy Kumar Das, of Pierrefonds, Quebec, Canada;
- (3) Caroline Cadilhac, of Montreal, Quebec, Canada;
- (4) Thumkunta Jagadeeswar Reddy, of Pierrefonds, Quebec, Canada;
- (5) Louis Vaillancourt, of Mascouche, Quebec, Canada;
- (6) Michel Gallant, of Pierrefonds, Quebec, Canada;
- (7) Bingcan Liu, of Montreal, Quebec, Canada;
- (8) Evelyne Dietrich, of Laval, Quebec, Canada;
- (9) Frederic Vallee, of Montreal, Quebec, Canada;
- (10) Julien Martel, of Montreal, Quebec, Canada; and
- (11) Carl Poisson, of Montreal, Quebec, Canada,

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 (Canada) Incorporated, and do hereby assign, sell and transfer to, Vertex Pharmaceuticals (Canada) Incorporated, a company registered in British Columbia, Canada and having an office and a place of business at 275 Armand-Frappier Blvd., Laval (Quebec) H7V 4A7 Canada, its successors and assigns, all hereinafter referred to as the ASSIGNEE:

- (1) the entire right, title and interest in all countries throughout the world in and to any and all of my/our inventions, and discoveries disclosed in:
- (a) the application for United States Letters Patent entitled: MANNOSE DERIVATIVES FOR TREATING BACTERIAL INFECTIONS, and filed in the United States Patent and Trademark Office on December 18, 2013 under Application Number 14/132,662, including any renewals, revivals, reissues, reexaminations, extensions, continuations, and divisions thereof, and any substitute applications therefor, and/or
- (b) the International Patent Application entitled: MANNOSE DERIVATIVES FOR TREATING BACTERIAL INFECTIONS, filed under the Patent Cooperation Treaty in the United States Receiving Office on December 18, 2013 under Application No. PCT/US2013/76086, and designating all countries, including any renewals, revivals, reissues,

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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 any country throughout the world;
- (3) the entire right, title and interest in and to any Letters Patent which may issue thereon in any country throughout 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):

| 61/738,620 | US | December 18, 2012 |
|-----------------|---------|-------------------|
| Application No. | Country | Filing Date |
| 61/788,241 | US | March 15, 2013 |
| Application No. | Country | Filing Date |
| 61/874,501 | US | September 6, 2013 |
| 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 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.

(1) Yeeman K. Ramtohul

Date: January 22, 2014

IN WITNESS WHEREOF, I have hereunto set hand and seal

Signature of witness: (1)

Printed Name of Witness:

this 22 day of _

this _____ day of _____ Jamany 2014.

Date of signing

Kumar

(2) Sanjoy Kumar Das

| | Date: | January | 6,2014 |
|---|------------|----------|--------|
| | | | |
| | | | |
| IN WITNESS WHEREOF, I have hereunto | set hand a | and seal | |
| Signature of witness: (1) | lu | ller | |
| Printed Name of Witness: | | DUELLET | 1 |
| this day of Date of significant | 10/ | 1 | |
| Date of significant | vg. | | |
| Signature of witness: (2) | Lazou : | | |
| Printed Name of Witness: | LA Joie | | |
| this 6th day of January Date of signin | 2014. | | |
| Date of signifi | ·D | | |

Catilhac
(3) Caroline Cadilhac

Date: January 6, 2014

IN WITNESS WHEREOF, I have hereunto set hand and seal

| Signature of witness: (1) |
|--|
| Printed Name of Witness: NICOLAS CADILHAC |
| this 6 day of January 2014. |
| this 6 day of January 2014. Date of signing |
| |
| Signature of witness: (2) |
| Signature of witness. (2) |
| Printed Name of Witness: SYLVIE OUBLES |
| this 6 th day of January 2014 |
| Date of signing |

(4) Thumkunta Jagadeeswar Reddy

Date: Jan 06, 2014

| IN WITNESS WHEREOF, I have hereunto set hand and seal |
|---|
| |
| Signature of witness: (1) |
| Printed Name of Witness: SYLVE OVEUET |
| this 6th day of January 2014. |
| Date of signing |
| |
| Signature of witness: (2) |
| Printed Name of Witness: |
| this 6th day of January 2014. Date of signing |
| Date of signing |

| (5) Louis Vaillancourt |
|---|
| Date: 1/6/2014 |
| |
| IN WITNESS WHEREOF, I have hereunto set hand and seal |
| Signature of witness: (1) |
| Printed Name of Witness: SYLVIE OVELLET |
| this bth day of James 1014. Date of signing |
| 2 **** 01 5-8 |
| Signature of witness: (2) |
| Printed Name of Witness: CECILE LAGOIE |
| this 6th day of January 2014. Date of signing |

| <u>A</u> | lebi | | all | A | |
|----------|-------------|---|-----|----|--|
| (6) Mich | nel Gallant | | | | |
| Date: | کمر | 6 | ,20 | 14 | |

Cinfor (7) Bingcan Liu
Date: Jan. 06. 2014

| IN WITNESS WHEREOF, I have hereunto set hand and seal |
|---|
| Signature of witness: (1) |
| Printed Name of Witness: SYLVIE OUEUE |
| this 6 th day of James 1014 Date of signing |
| Signature of witness: (2) |
| Printed Name of Witness: |
| this 6th day of January 2014. Date of signing |

this 6th day of Jemany 2014.

Date of signing

(8) Evelyne Dietrich

Vertex Pharmaceuticals (Canada) Incorporated Attorney Docket No.: VPI/12-131 US & WO

| (9) Frederic vallee |
|---|
| Date: 2014-01-06 |
| |
| IN WITNESS WHEREOF, I have hereunto set hand and seal |
| Signature of witness: (1) |
| Printed Name of Witness: SYLVIE OUECLET |
| this 6th day of January 2014 |
| Date of signing |
| Signature of witness: (2) |
| Printed Name of Witness: CECLE LA JOIE |
| this 6th day of Joneany 2014. Date of signing |

| Date: January 6th 2014 |
|--|
| IN WITNESS WHEREOF, I have hereunto set hand and seal Signature of witness: (1) Printed Name of Witness: |
| this day of January WY Date of signing |
| Signature of witness: (2) |
| Printed Name of Witness: CECILE LATOIE |
| this 6th day of Joneany 2014. Date of signing |

(10) Julien Martel

Vertex Pharmaceuticals (Canada) Incorporated
Attorney Docket No.: VPI/12-131 US & WO

(11) Carl Poisson

Date: To com Page (X. 2a)

IN WITNESS WHEREOF, I have hereunto set hand and seal

ACKNOWLEDGMENT OF ASSIGNEE

By: Stephen L. Nesbitt

Vice President and Chief IP Counsel

VERTEX PHARMACEUTICALS INCORPORATED

Date: January 24, 2014

Commonwealth of Massachusetts

County of Middlesex

On this 48 day of January, 2014, before me, the undersigned notary public, personally appeared Stephen L. 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.

Notary Public

My Commission Expires: 3 lk / Jolfs.

