

## 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>Peter Jamison Rose</td> <td>08/09/2013</td> </tr> <tr> <td>Shereen Ibrahim</td> <td>08/12/2013</td> </tr> <tr> <td>Cavan McKeon Bligh</td> <td>08/12/2013</td> </tr> <tr> <td>Luigi Anzalone</td> <td>08/16/2013</td> </tr> </tbody> </table>		Name	Execution Date	Peter Jamison Rose	08/09/2013	Shereen Ibrahim	08/12/2013	Cavan McKeon Bligh	08/12/2013	Luigi Anzalone	08/16/2013
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Luigi Anzalone	08/16/2013										
RECEIVING PARTY DATA											
<table border="1"> <tr> <td>Name:</td> <td>Vertex Pharmaceuticals Inc.</td> </tr> <tr> <td>Street Address:</td> <td>130 Waverly Street</td> </tr> <tr> <td>City:</td> <td>Cambridge</td> </tr> <tr> <td>State/Country:</td> <td>MASSACHUSETTS</td> </tr> <tr> <td>Postal Code:</td> <td>02139</td> </tr> </table>		Name:	Vertex Pharmaceuticals Inc.	Street Address:	130 Waverly Street	City:	Cambridge	State/Country:	MASSACHUSETTS	Postal Code:	02139
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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>13845415</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13845415						
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CORRESPONDENCE DATA											
<p>Fax Number: 9497609502  <i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i></p> <p>Phone: 858 707 4000        Email: efiling@knobbe.com</p> <p>Correspondent Name: Knobbe, Martens, Olson &amp; Bear LLP        Address Line 1: 2040 Main Street        Address Line 2: 14th Floor        Address Line 4: Irvine, CALIFORNIA 92614</p>											
ATTORNEY DOCKET NUMBER:	ALIOS.057A2										
NAME OF SUBMITTER:	Kimberly J. Miller										
Signature:	/Kimberly J. Miller/										

PATENT

Date:

08/19/2013

**Total Attachments: 6**

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**COMBINED DECLARATION & ASSIGNMENT (37 CFR 1.63(e))**

*Application Data Sheet filed previously or concurrently*

Docket No.: ALIOS.057A2

Page 1 of 1

Title: METHODS OF PREPARING SUBSTITUTED NUCLEOTIDE ANALOGS

Inventors: Vladimir Serebryany, Jyanwei Liu, Leonid Beigelman, Young Chun Jung, Peter Jamison Rose, Shereen Ibrahim, Cavan McKeon Bligh, Luigi Anzalone

***Declaration***

This Declaration is directed to the application identified above that:

Was filed **March 18, 2013** as U.S. or International Application No. **13/845,415** and incorporating any amendments made thereto prior to the signature date of this Declaration.

As a named inventor, I declare that:

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

I believe that I am the original inventor or an original joint inventor in the application.

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

I have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

***Assignment from Inventors***

WHEREAS, **Peter Jamison Rose, Shereen Ibrahim, Cavan McKeon Bligh and Luigi Anzalone** (individual(s) hereinafter "ASSIGNOR") invented certain new and useful improvements, technology, inventions, developments, ideas, ornamental designs, or discoveries, and hereby assign or are under an obligation to assign to the below identified Assignee the above-titled application (collectively hereinafter referred to as the "Work") for which an application for Letters Patent in the United States (identified above) has been prepared for filing with the United States Patent and Trademark Office (hereinafter the "Application").

AND WHEREAS, **Vertex Pharmaceuticals Inc.**, with its principal place of business at 130 Waverly Street, Cambridge, Massachusetts, 02139 (hereinafter the "ASSIGNEE"), desires to acquire the entire right, title, and interest in and to the Application and the Work held by ASSIGNOR.

NOW, THEREFORE, for good and valuable consideration of which receipt is hereby acknowledged, ASSIGNOR hereby acknowledges that ASSIGNOR has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto said ASSIGNEE, its successors, legal representatives and assigns, ASSIGNOR'S entire right, title, and interest throughout the world in the Application and the Work, including all patent properties filed or issued upon the Application and the Work; where "Patent Properties" include, but are not limited to:

all provisional applications relating thereto (including but not limited to U.S. Provisional Application Nos. **61/734,564**, filed **December 7, 2012** and **61/613,758**, filed **March 21, 2012** (respectively if plural applications));

all nonprovisional applications claiming priority to aforementioned provisional(s) and/or the present Application, including, all divisions, continuations, continuations-in-part, and reissues, and all Letters Patent of the United States which may be granted thereon and all reissues and extensions thereof; and

all rights of priority under International Conventions and any related Letters Patent which may hereafter be granted or filed in any country or countries foreign to the United States, all extensions, renewals and reissues thereof.

**PATENT**

**REEL: 031038 FRAME: 0684**

**COMBINED DECLARATION & ASSIGNMENT (37 CFR 1.63(e))***Application Data Sheet filed previously or concurrently*

Docket No.: ALIOS.057A2

Page 2 of 2

Title: METHODS OF PREPARING SUBSTITUTED NUCLEOTIDE ANALOGS

Inventors: Vladimir Serebryany, Jyanwei Liu, Leonid Beigelman, Young Chun Jung, Peter Jamison Rose, Shereen Ibrahim, Cavan McKeon Bligh, Luigi Anzalone

ASSIGNOR hereby acknowledges the ASSIGNEE as the Applicant for all aforementioned patent properties, and authorizes and requests the Commissioner of Patents of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all related Letters Patent to the ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

AND ASSIGNOR DOES HEREBY sell, assign, transfer, and convey to ASSIGNEE, its successors, legal representatives, and assigns all claims for damages and all remedies arising out of any violation of the rights assigned hereby that may have accrued prior to the date of assignment to ASSIGNEE, or may accrue hereafter, including, but not limited to, the right to sue for, collect, and retain damages for past infringements of said Letters Patent before or after issuance.

AND ASSIGNOR DOES HEREBY covenant and agree that ASSIGNOR will communicate to said ASSIGNEE, its successors, legal representatives and assigns, any facts known to ASSIGNOR respecting the Work, and testify in any legal proceeding, assist in the preparation of any other Patent Property relating to the Application and the Work or any improvements made thereto, sign/execute all lawful papers, execute and make all rightful oaths and/or declarations in connection with the Application and the Work including any improvements made thereto, any patent applications filed therefrom, and any continuing application filed from any of the aforementioned applications, and generally do everything possible to aid the ASSIGNEE, its successors, legal representatives and assigns, to obtain and enforce proper patent protection for the Work in all countries.

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**COMBINED DECLARATION & ASSIGNMENT (37 CFR 1.63(e))**

*Application Data Sheet filed previously or concurrently*

Docket No.: ALIOS.057A2

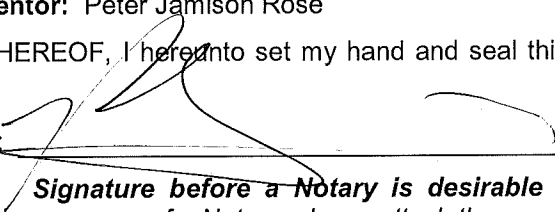
Page 3 of 3

Title: METHODS OF PREPARING SUBSTITUTED NUCLEOTIDE ANALOGS

Inventors: Vladimir Serebryany, Jyanwei Liu, Leonid Beigelman, Young Chun Jung, Peter Jamison Rose, Shereen Ibrahim, Cavan McKeon Bligh, Luigi Anzalone

Legal Name of inventor: Peter Jamison Rose

IN TESTIMONY WHEREOF, I hereto set my hand and seal this 9<sup>th</sup> day of August, 2013.

Signature: 

Date: Aug. 9, 2013

*Signature before a Notary is desirable but not required. When signed in presence of a Notary, please attach the appropriate notarial documentation.*

**COMBINED DECLARATION & ASSIGNMENT (37 CFR 1.63(e))**

*Application Data Sheet filed previously or concurrently*

Docket No.: ALIOS.057A2

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Title: METHODS OF PREPARING SUBSTITUTED NUCLEOTIDE ANALOGS

Inventors: Vladimir Serebryany, Jyanwei Liu, Leonid Beigelman, Young Chun Jung, Peter Jamison Rose,  
Shereen Ibrahim, Cavan McKeon Bligh, Luigi Anzalone

**Legal Name of inventor:** Shereen Ibrahim

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 12 day of August,  
2013.

Signature: \_\_\_\_\_

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

*Signature before a Notary is desirable but not required. When signed in  
presence of a Notary, please attach the appropriate notarial documentation.*

**PATENT**

**REEL: 031038 FRAME: 0687**

**COMBINED DECLARATION & ASSIGNMENT (37 CFR 1.63(e))**

*Application Data Sheet filed previously or concurrently*

Docket No.: ALIOS.057A2

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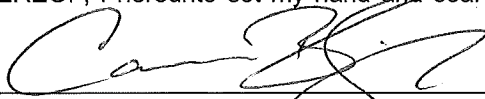
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**Legal Name of inventor:** Cavan McKeon Bligh

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 12 day of AUGUST, 2013.

Signature:



Date:

8/12/2013

*Signature before a Notary is desirable but not required. When signed in presence of a Notary, please attach the appropriate notarial documentation.*

**PATENT**

**REEL: 031038 FRAME: 0688**

**COMBINED DECLARATION & ASSIGNMENT (37 CFR 1.63(e))**

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Page 6 of 6

Title: METHODS OF PREPARING SUBSTITUTED NUCLEOTIDE ANALOGS

Inventors: Vladimir Serebryany, Jyanwei Liu, Leonid Beigelman, Young Chun Jung, Peter Jamison Rose, Shereen Ibrahim, Cavan McKeon Bligh, Luigi Anzalone

**Legal Name of inventor:** Luigi Anzalone

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 16 day of August, 2013.

Signature: Luigi Anzalone Date: 16 Aug 2013

**Signature before a Notary is desirable but not required.** When signed in presence of a Notary, please attach the appropriate notarial documentation.

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