

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT2692879

| 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>C. FRANK BENNETT</td> <td>11/12/2013</td> </tr> <tr> <td>SUSAN M. FREIER</td> <td>11/05/2013</td> </tr> <tr> <td>FRANK RIGO</td> <td>10/23/2013</td> </tr> </tbody> </table> | | Name | Execution Date | C. FRANK BENNETT | 11/12/2013 | SUSAN M. FREIER | 11/05/2013 | FRANK RIGO | 10/23/2013 |
| Name | Execution Date | | | | | | | | |
| C. FRANK BENNETT | 11/12/2013 | | | | | | | | |
| SUSAN M. FREIER | 11/05/2013 | | | | | | | | |
| FRANK RIGO | 10/23/2013 | | | | | | | | |
| RECEIVING PARTY DATA | | | | | | | | | |
| Name: | Isis Pharmaceuticals, Inc. | | | | | | | | |
| Street Address: | 2855 Gazelle Court | | | | | | | | |
| City: | Carlsbad | | | | | | | | |
| State/Country: | CALIFORNIA | | | | | | | | |
| Postal Code: | 92010 | | | | | | | | |
| PROPERTY NUMBERS Total: 1 | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>PCT Number:</td> <td>US2013065067</td> </tr> </tbody> </table> | | Property Type | Number | PCT Number: | US2013065067 | | | | |
| Property Type | Number | | | | | | | | |
| PCT Number: | US2013065067 | | | | | | | | |
| CORRESPONDENCE DATA | | | | | | | | | |
| Fax Number: | (760)603-3820 | | | | | | | | |
| Phone: | 760-603-2553 | | | | | | | | |
| Email: | leames@isisph.com | | | | | | | | |
| <i>Correspondence will be sent via US Mail when the email attempt is unsuccessful.</i> | | | | | | | | | |
| Correspondent Name: | ISIS PHARMACEUTICALS, INC. | | | | | | | | |
| Address Line 1: | 2855 GAZELLE COURT | | | | | | | | |
| Address Line 4: | CARLSBAD, CALIFORNIA 92010 | | | | | | | | |
| ATTORNEY DOCKET NUMBER: | BIOL0214WO | | | | | | | | |
| NAME OF SUBMITTER: | LAURA EAMES | | | | | | | | |
| Signature: | /Laura Eames/ | | | | | | | | |
| Date: | 01/22/2014 | | | | | | | | |

PATENT

Total Attachments: 6

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ASSIGNMENT

WHEREAS, I/we, **C. Frank Bennett, of Carlsbad, CA, Susan M. Freier, of San Diego, CA, and Frank Rigo, of Carlsbad, CA** (the "assignors"), has/have invented with others a certain invention entitled **METHODS FOR MODULATING C9ORF72 EXPRESSION**, for which I/we have made an application for letters patent of the United States and foreign jurisdictions through the Patent Cooperation Treaty, said application having been filed **October 15, 2013** and assigned application no. **PCT/US2013/065067** (the "Application"); and

WHEREAS, **ISIS Pharmaceuticals, Inc.** hereinafter referred to as the assignee, of 2855 Gazelle Court, Carlsbad CA, a corporation of Delaware, is desirous of acquiring my/our entire right, title and interest in and to the said invention and improvements therein (the "Invention") and in and to the said Application, and in, to and under any and all letters patent or patents which may be granted on or as a result thereof or otherwise relate to the Invention in any and all countries:

NOW, THEREFORE, for and in consideration of the sum of one dollar (\$1.00) to each of us in hand paid by said assignee, and other good and valuable consideration, the receipt of which is hereby acknowledged, we, the said assignors, have sold, assigned, transferred and set over, or by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said Invention and said Application (including the right to apply for any letters patent or patents for any countries in relation to the Invention and all priority rights) and any and all continuations, continuations-in-part, divisions, rights of priority under International Conventions including the Paris Convention, and renewals of and substitutes for said Application, and in, to and under any and all letters patent or patents which may be granted on or as a result thereof or otherwise relate to the Invention in the United States and any and all other countries, and any reissue or reissues or extension or extensions or supplementary protection certificates in relation to any of said letters patent or patents, and assign to and authorize said assignee to file in our names applications for letters patent or patents in all countries, the same to be held and enjoyed by said assignee, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said letters patent or patents

respectively may be granted, reissued, extended or supplemented, as fully and entirely as the same would have been held and enjoyed by us had this assignment, sale and transfer not been made.

AND we hereby covenant that we have full right to convey the entire interest herein assigned, and that we have not executed and will not execute any agreement in conflict herewith, and we further covenant and agree that we will each time request is made and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said Invention, said Application and said letters patent or patents to said assignee, its successors, assigns, nominees, or legal representatives, and each of us agrees to communicate to said assignee or to its nominee all known facts respecting said Invention, said Application and said letters patent or patents, to testify in any legal proceedings, to sign all lawful papers to execute all disclaimers and divisional, continuing, reissue and foreign applications, to make all rightful oaths, and generally to do everything possible to aid said assignee, its successors, assigns, nominees and legal representatives to obtain and enforce for its or their own benefit proper patent protection for said inventions or improvements in any and all countries.

AND we hereby sell, assign, transfer, and convey to assignee 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 said 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 or patents before or after issuance.

AND we hereby authorize and request the Commissioner of Patents and Trademarks 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 to said assignee, as assignee of the entire right, title and interest, any and all letters patent and patents for said Invention, including any and all letters patent of the United States which may be issued and granted on or as a result of the Application aforesaid, in accordance with the terms of this assignment.

IN WITNESS WHEREOF, we have hereunto set our hands and seals.

Dated: 11-12 2013

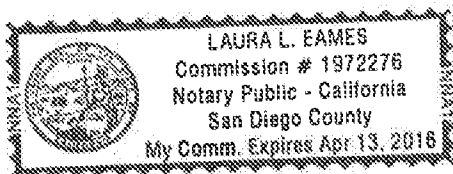
C. Frank Bennett
C. Frank Bennett

State of California)
County of San Diego) ss.

On Nov. 12, 2013 before me, Laura L. Eames, Notary Public, personally appeared **C. Frank Bennett**, who is 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.



Laura L. Eames
Signature of Notary

Dated: 11/5 2013

Susan M Freier
Susan M. Freier

State of California)
County of San Diego) ss.

On Nov. 5, 2013 before me, Laura L. Eames, Notary Public, personally appeared Susan M. Freier, who is 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.

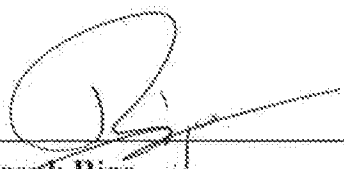
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Laura L. Eames
Signature of Notary

Dated: October 23 2013



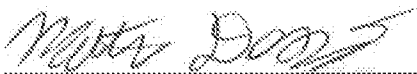
Frank Rigo

State of California)
County of San Diego) ss.

On Oct. 23, 2013 before me, Matthew DePietro, Notary Public, personally appeared **Frank Rigo**, who is 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 of Notary

ISIS PHARMACEUTICALS, INC.

By: [Signature]
Name: **Jason D. Ferrone**
Title: **Vice President, Patents and Corporate Development**

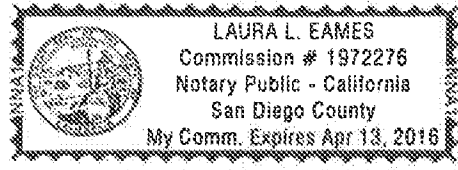
Dated: 14 Jan 2014

State of California)
County of San Diego) ss.

On Jan. 14, 2014 before me, Laura L Eames, Notary Public, personally appeared **Jason D. Ferrone**, who is 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]
Signature of Notary