



UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

SEPTEMBER 24, 2018

PTAS

IONIS PHARMACEUTICALS, INC.
2855 GAZELLE COURT
CARLSBAD, CA 92010

505062004

UNITED STATES PATENT AND TRADEMARK OFFICE NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT RECORDATION BRANCH OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE ASSIGNMENT RECORDATION BRANCH AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT RECORDATION BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 08/24/2018

REEL/FRAME: 046942/0729
NUMBER OF PAGES: 9

BRIEF: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

DOCKET NUMBER: BIOL0324US.L

ASSIGNOR:

COLE, TRACY A.

DOC DATE: 08/01/2018

ASSIGNOR:

KORDASIEWICZ, HOLLY

DOC DATE: 08/09/2018

ASSIGNOR:

BUI, HUYNH-HOA

DOC DATE: 08/09/2018

ASSIGNOR:

FREIER, SUSAN M.

DOC DATE: 08/09/2018

ASSIGNEE:

IONIS PHARMACEUTICALS, INC.
2855 GAZELLE COURT
CARLSBAD, CALIFORNIA 92010

APPLICATION NUMBER: 62690790

FILING DATE: 06/27/2018

PATENT NUMBER:

ISSUE DATE:

TITLE: COMPOUNDS AND METHODS FOR REDUCING LRRK2 EXPRESSION

ASSIGNMENT RECORDATION BRANCH
PUBLIC RECORDS DIVISION

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

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>TRACY A. COLE</td><td>08/01/2018</td></tr><tr><td>HOLLY KORDASIEWICZ</td><td>08/09/2018</td></tr><tr><td>HUYNH-HOA BUI</td><td>08/09/2018</td></tr><tr><td>SUSAN M. FREIER</td><td>08/09/2018</td></tr></tbody></table>	Name	Execution Date	TRACY A. COLE	08/01/2018	HOLLY KORDASIEWICZ	08/09/2018	HUYNH-HOA BUI	08/09/2018	SUSAN M. FREIER	08/09/2018	
Name	Execution Date										
TRACY A. COLE	08/01/2018										
HOLLY KORDASIEWICZ	08/09/2018										
HUYNH-HOA BUI	08/09/2018										
SUSAN M. FREIER	08/09/2018										
RECEIVING PARTY DATA											
<table border="1"><tr><td>Name:</td><td>IONIS PHARMACEUTICALS, INC.</td></tr><tr><td>Street Address:</td><td>2855 GAZELLE COURT</td></tr><tr><td>City:</td><td>CARLSBAD</td></tr><tr><td>State/Country:</td><td>CALIFORNIA</td></tr><tr><td>Postal Code:</td><td>92010</td></tr></table>	Name:	IONIS PHARMACEUTICALS, INC.	Street Address:	2855 GAZELLE COURT	City:	CARLSBAD	State/Country:	CALIFORNIA	Postal Code:	92010	
Name:	IONIS 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>Application Number:</td><td>62690790</td></tr></tbody></table>	Property Type	Number	Application Number:	62690790							
Property Type	Number										
Application Number:	62690790										
CORRESPONDENCE DATA											
Fax Number: (760)603-3820 Phone: 760-603-2553 Email: leames@ionisph.com <i>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.</i> Correspondent Name: IONIS PHARMACEUTICALS, INC. Address Line 1: 2855 GAZELLE COURT Address Line 4: CARLSBAD, CALIFORNIA 92010											
ATTORNEY DOCKET NUMBER:	BIOL0324US.L										
NAME OF SUBMITTER:	LAURA EAMES										
Signature:	/Laura Eames/										

Date:

08/24/2018

Total Attachments: 7

source=BIOL0324USLASGN#page1.tif
source=BIOL0324USLASGN#page2.tif
source=BIOL0324USLASGN#page3.tif
source=BIOL0324USLASGN#page4.tif
source=BIOL0324USLASGN#page5.tif
source=BIOL0324USLASGN#page6.tif
source=BIOL0324USLASGN#page7.tif

RECEIPT INFORMATION**EPAS ID:** PAT5108759**Receipt Date:** 08/24/2018

A S S I G N M E N T

WHEREAS, I/we, **Tracy A. Cole**, of **Encinitas, CA**, **Holly Kordasiewicz**, of **San Diego, CA**, **Huynh-Hoa Bui**, of **San Diego, CA**, and **Susan M. Freier**, of **San Diego, CA** (the “assignors”), has/have invented a certain invention entitled **COMPOSITIONS AND METHODS FOR REDUCING LRRK2 EXPRESSION**, for which I/we have made an application for letters patent of the United States, said application having been filed **June 27, 2018** and assigned application no. **62/690,790** (the “Application”); and

WHEREAS, **Ionis 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:

8-1 20 18
Tracy A. Cole

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)County of San Diego)

ss.

On August 1, 2018 before me, Laura L. Eames, Notary Public, personally appeared **Tracy A. Cole**, 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.

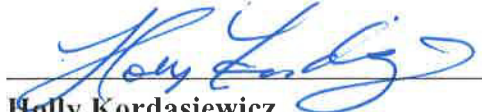
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.



WITNESS my hand and official seal.



Signature of Notary

Dated: 8/9 2018
Holly Kordasiewicz

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
)
County of San Diego) ss.

On August 9, 2018 before me, Laura L. Eames, Notary Public, personally appeared **Holly Kordasiewicz**, 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

Dated: 8/9 20 18Huynh-Hoa Bui
Huynh-Hoa Bui

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of San Diego) ss.

On August 9, 2018 before me, Laura L Eames, Notary Public, personally appeared **Huynh-Hoa Bui**, 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: 9-Aug 2018Susan M Freier
Susan M. Freier

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of San Diego) ss.

On August 9, 2018 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

IONIS PHARMACEUTICALS, INC.

By: Name: **Clifford E. Ford**Dated: 8/16/ 2018Title: **Vice President, Patents and Senior Patent Counsel**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of San Diego) ss.

On August 16th 2018 before me, Katherine Ann Rouse, Notary Public, personally appeared **Clifford E. Ford**, 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



UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

SEPTEMBER 25, 2019

PTAS

IONIS PHARMACEUTICALS, INC.
2855 GAZELLE CT.
CARLSBAD, CA 92010

505687519

UNITED STATES PATENT AND TRADEMARK OFFICE NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT RECORDATION BRANCH OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE ASSIGNMENT RECORDATION BRANCH AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT RECORDATION BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 09/24/2019

REEL/FRAME: 050474/0133
NUMBER OF PAGES: 9

BRIEF: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

DOCKET NUMBER: BIOL0324WO

ASSIGNOR:

COLE, TRACY A.

DOC DATE: 07/01/2019

ASSIGNOR:

KORDASIEWICZ, HOLLY

DOC DATE: 08/09/2019

ASSIGNOR:

BUI, HUYNH-HOA

DOC DATE: 07/30/2019

ASSIGNOR:

FREIER, SUSAN M.

DOC DATE: 08/27/2019

ASSIGNEE:

IONIS PHARMACEUTICALS, INC.
2855 GAZELLE COURT
CARLSBAD, CALIFORNIA 92010

APPLICATION NUMBER:

FILING DATE: 06/27/2019

PATENT NUMBER:

ISSUE DATE:

PCT NUMBER: US2019039558

TITLE: COMPOUNDS AND METHODS FOR REDUCING LRRK2 EXPRESSION

ASSIGNMENT RECORDATION BRANCH
PUBLIC RECORDS DIVISION

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
TRACY A. COLE	07/01/2019
HOLLY KORDASIEWICZ	08/09/2019
HUYNH-HOA BUI	07/30/2019
SUSAN M. FREIER	08/27/2019
RECEIVING PARTY DATA	
Name:	IONIS PHARMACEUTICALS, INC.
Street Address:	2855 GAZELLE COURT
City:	CARLSBAD
State/Country:	CALIFORNIA
Postal Code:	92010
PROPERTY NUMBERS Total: 1	
Property Type	Number
PCT Number:	US2019039558
CORRESPONDENCE DATA	
Fax Number:	(760)603-3820
Phone:	760-603-2553
Email:	leames@ionisph.com
<i>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.</i>	
Correspondent Name:	IONIS PHARMACEUTICALS, INC.
Address Line 1:	2855 GAZELLE CT.
Address Line 4:	CARLSBAD, CALIFORNIA 92010
ATTORNEY DOCKET NUMBER:	BIOL0324WO
NAME OF SUBMITTER:	LAURA EAMES
Signature:	/Laura Eames/
Date:	09/24/2019
Total Attachments: 7 source=BIOL0324WOASGN#page1.tif	

source=BIOL0324WOASGN#page2.tif
source=BIOL0324WOASGN#page3.tif
source=BIOL0324WOASGN#page4.tif
source=BIOL0324WOASGN#page5.tif
source=BIOL0324WOASGN#page6.tif
source=BIOL0324WOASGN#page7.tif

RECEIPT INFORMATION

EPAS ID: PAT5734329
Receipt Date: 09/24/2019

A S S I G N M E N T

WHEREAS, I/we, **Tracy A. Cole**, of **Encinitas, CA**, **Holly Kordasiewicz**, of **San Diego, CA**, **Huynh-Hoa Bui**, of **San Diego, CA**, and **Susan M. Freier**, of **San Diego, CA** (the “assignors”), has/have invented a certain invention entitled **COMPOSITIONS AND METHODS FOR REDUCING LRRK2 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 **June 27, 2019** and assigned application no. **PCT/US2019/039558** (the “Application”); and

WHEREAS, **Ionis 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: 7 - 1 20 19


Tracy A. Cole

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

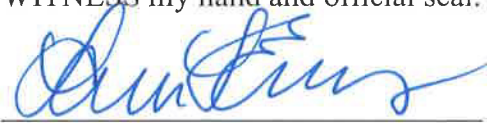
State of California)
County of San Diego) ss.

On July 1, 2019 before me, Laura L. Eames, Notary Public, personally appeared **Tracy A. Cole**, 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

Dated: 8/9 20 19


Holly Kordasiewicz

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

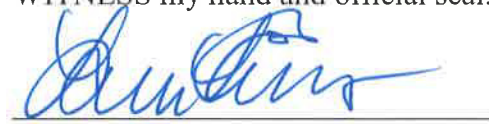
State of California)
County of San Diego) ss.

On August 9, 2019 before me, Laura L. Eames, Notary Public, personally appeared **Holly Kordasiewicz**, 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

Dated: 7/30 2019

Huynh-Hoa Bui
Huynh-Hoa Bui

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

State of California)
)
County of San Diego) ss.

On July 30, 2019 before me, Laura L Eames, Notary Public, personally appeared **Huynh-Hoa Bui**, 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: 27-Aug 2019

Susan M. Freier
Susan M. Freier

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

State of California)
County of San Diego) ss.

On August 27, 2019 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

DOCKET NO.: BIOL0324WO

IONIS PHARMACEUTICALS, INC.

By: 

Dated: 9/23 2019

Name: **Clifford E. Ford**

Title: **Vice President, Patents and Senior Patent Counsel**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
)
County of San Diego) ss.

On September 23, 2019 before me, Laura L. Eames, Notary Public, personally appeared **Clifford E. Ford**, 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