

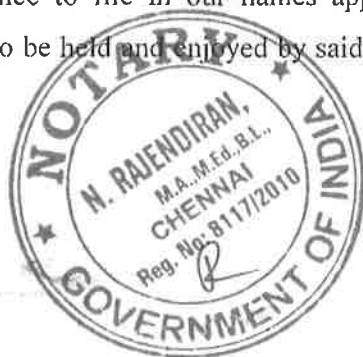
DOCKET NO.: BIOL0283WO

ASSIGNMENT

WHEREAS, I/we, **Nicholas J. Viney**, of **Carlsbad, CA**, **Richard S. Geary**, of **Carlsbad, CA**, **Yanfeng Wang**, of **Carlsbad, CA**, **Zhengrong Yu**, of **Carlsbad, CA**, and **Rudy Gunawan**, of **Apex, NC** (the "assignors"), has/have invented a certain invention entitled **MODULATING APOLIPOPROTEIN (A) 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 **November 7, 2016** and assigned application no. **PCT/US2016/060816** (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



DOCKET NO.: BIOL0283WO

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.



DOCKET NO.: BIOL0283WO

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

Dated: 8 Feb 2017

Nick Viney
Nicholas J. Viney

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 February 8, 2017 before me, Laura L. Eames, Notary Public, personally appeared **Nicholas J. Viney**, 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



DOCKET NO.: BIOL0283WO

Dated: 19 June 2017


Richard S. Geary

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 June 19, 2017 before me, Laura L. Eames, Notary Public, personally appeared **Richard S. Geary**, 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



DOCKET NO.: BIOL0283WO

IONIS PHARMACEUTICALS, INC.

By: *Clifford E. Ford*
Name: **Clifford E. Ford**
Title: **Vice President, Patents and Senior Patent Counsel**

Dated: 7/25 2017

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 25, 2017 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.

Laura L Eames
Signature of Notary



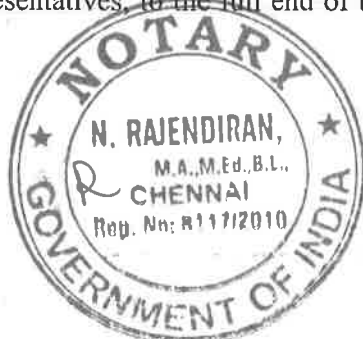
N. Rajendiran ASSIGNMENT - Page 8 of 8
N. RAJENDIRAN, M.A., M.Ed., B.L.,
ADVOCATE & NOTARY PUBLIC
GOVERNMENT OF INDIA 19/2/18
No. 1, Jothiramalingam II Cross Street,
West Mambalam, Chennai - 600 033.
Mobile : 98411 22650

ASSIGNMENT

WHEREAS, I/we, **Nicholas J. Viney, of Carlsbad, CA, Richard S. Geary, of Carlsbad, CA, Yanfeng Wang, of Carlsbad, CA, Zhengrong Yu, of Carlsbad, CA, and Rudy Gunawan, of Apex, NC** (the "assignors"), has/have invented a certain invention entitled **MODULATING APOLIPOPROTEIN (A) EXPRESSION**, for which I/we have made an application for letters patent of the United States, said application having been filed **November 6, 2015** and assigned application no. **62/252,392** (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: 10 May 2016

Nik Viney
Nicholas J. Viney

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 May 10, 2016 before me, Laura L Eames, Notary Public, personally appeared **Nicholas J. Viney**, 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



Dated: 10-May 2016

[Signature]
Yanfeng Wang

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 May 10, 2016 before me, Laura L Eames, Notary Public, personally appeared **Yanfeng Wang**, 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



DOCKET NO.: BIOL0283US.L

PROVISIONAL

ISIS PHARMACEUTICALS, INC.

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

Dated: 11 May 2016

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 May 11, 2016 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



[Signature] ASSIGNMENT - Page 8 of 8
N. RAJENDIRAN, M.A., M.Ed., B.L.,
ADVOCATE & NOTARY PUBLIC
GOVERNMENT OF INDIA
No. 1, Jothiramanigam II Cross Street,
West Mambalam, Chennai - 600 033.
Mobile : 98411 22650

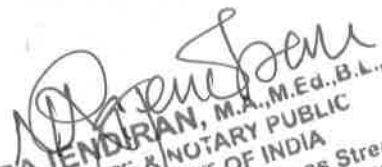
Delaware

Page 1

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "ISIS PHARMACEUTICALS, INC.", CHANGING ITS NAME FROM "ISIS PHARMACEUTICALS, INC." TO "IONIS PHARMACEUTICALS, INC.", FILED IN THIS OFFICE ON THE EIGHTEENTH DAY OF DECEMBER, A.D. 2015, AT 9:30 O'CLOCK A.M.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS.


N. RAJENDRAN, M.A., M.Ed., B.L.,
ADVOCATE & NOTARY PUBLIC
GOVERNMENT OF INDIA
No. 1, Jothiramaalingam II Cross Street,
West Mambalam, Chennai - 600 033.
Mobile : 98414 22659 / 9092477995




Jeffrey W. Bullock, Secretary of State

2258177 8100
SR# 20151425168

Authentication: 10646087
Date: 12-18-15

You may verify this certificate online at corp.delaware.gov/authver.shtml

**CERTIFICATE OF AMENDMENT
TO THE RESTATED CERTIFICATE OF INCORPORATION**

Isis Pharmaceuticals, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the "Corporation"), hereby certifies that:

FIRST: The name of the Corporation is Isis Pharmaceuticals, Inc.

SECOND: The date on which the Certificate of Incorporation of the Corporation was originally filed with the Secretary of State of the State of Delaware is March 25, 1991.

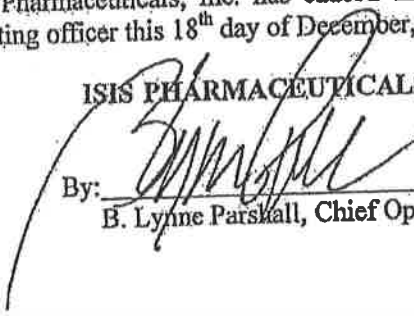
THIRD: The Board of Directors of the Corporation, acting in accordance with the provisions of Sections 141 and 242 of the General Corporation Law of the State of Delaware, adopted resolutions to amend its Restated Certificate of Incorporation as follows:

Article 1 shall be amended and restated to read in its entirety as follows:

"The name of the corporation is Ionis Pharmaceuticals, Inc."

IN WITNESS WHEREOF, Isis Pharmaceuticals, Inc. has caused this Certificate of Amendment to be signed by its chief operating officer this 18th day of December, 2015.

ISIS PHARMACEUTICALS, INC.

By: 
B. Lynne Parshall, Chief Operating Officer




N. RAJENDRAN, M.A., M.Ed., B.L.
ADVOCATE & NOTARY PUBLIC
GOVERNMENT OF INDIA
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Mobile - 98411 22650 / 9092477995