

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5892136

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
CHRISTOPHER BECKER	10/24/2019
XIAOLIN LI	10/28/2019
PEICHAO LU	10/30/2019
NAOMI SAMADARA RAJAPAKSA	10/24/2019
DAVID CHARLES TULLY	10/28/2019
XIAOJING MICHAEL WANG	10/29/2019
QIAN ZHAO	10/29/2019
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.
<b>Street Address:</b>	250 MASSACHUSETTS AVENUE
<b>City:</b>	CAMBRIDGE
<b>State/Country:</b>	MASSACHUSETTS
<b>Postal Code:</b>	02139
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16569107
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(919)536-6201
<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>	
<b>Phone:</b>	919.536.6200
<b>Email:</b>	lillian.glenn@btlaw.com
<b>Correspondent Name:</b>	ROBERT D. SHEREDA
<b>Address Line 1:</b>	2723 SOUTH STATE STREET
<b>Address Line 2:</b>	SUITE 150
<b>Address Line 4:</b>	ANN ARBOR, MICHIGAN 48104-6188
<b>ATTORNEY DOCKET NUMBER:</b>	16711-102
<b>NAME OF SUBMITTER:</b>	ROBERT D. SHEREDA, REG. NO. 72408
<b>SIGNATURE:</b>	/Robert D. Shereda/
<b>DATE SIGNED:</b>	01/03/2020

PATENT

**Total Attachments: 40**

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### ASSIGNMENT

This Assignment Agreement is entered into by and between:

Christopher BECKER	citizen of United States of America	51 Harvard Road Stow, MA 01775 United States of America
Xiaolin LI	citizen of China	19th Floor, Block D, Tsinghua Tongfang Hi-Tech Plaza, No.1 Wang Zhuang Road, Haidian, Beijing China
Peichao LU	citizen of China	Novartis Institutes for BioMedical Research Inc. 5300 Chiron Way Emeryville, CA 94608 United States of America
Naomi Samadara RAJAPAKSA	citizen of United States of America	1 DNA Way, MS 50, South San Francisco, CA 94080 United States of America
David Charles TULLY	citizen of United States of America	Novartis Institutes for Biomedical Research, Inc. 5300 Chiron Way Emeryville, California 94608 United States of America
Xiaojing Michael WANG	citizen of United States of America	3060 Chateau Way Livermore, CA 94550 United States of America
Qian ZHAO	citizen of China	681 St. Andrews Lane Louisville, CO 80027 United States of America

(hereinafter "Inventor(s)"),

and **NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.**, 250 Massachusetts Ave, Cambridge, Massachusetts 02139, USA, a company organized under the laws of Delaware.

For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, I/We the Inventor(s) do hereby confirm and agree that, by operation of law and/or contract, and/or by the fulfillment of any and all legal requirements regarding the transfer of employee inventions in my/our country of employment, **NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.** is the true and lawful owner of all right, title and interest in all inventions, discoveries, patents/utility models, applications, and rights described in paragraphs (1) through (8) below.

If, however, under the laws of any country, I/We the Inventor(s) nevertheless have any ownership right, title or interest in any of the items described herein (which I/We do not believe to be the case and make no claim in or to), for good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, I/We the Inventor(s) do hereby sell, assign and transfer to **NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.** and its successors, assigns and legal representatives (hereinafter referred to collectively as the "ASSIGNEE"), all of my/our right, title and interest for all countries of the world in and to

(1) all of my/our inventions and discoveries described in the provisional or non-provisional patent, utility model, or other application(s) entitled

**ANTIVIRAL PYRIDOPYRAZINEDIONE COMPOUNDS**

and filed in the United States Patent and Trademark Office on September 12, 2019 and accorded Application Number 16/569,107;

(2) the application(s) identified in paragraph (1), and all applications claiming priority from such application(s), directly or indirectly, including all national stages of any international patent application(s);

(3) the right to file patent, utility model, or other applications on any invention or discovery disclosed in any of the applications identified in paragraphs (1) and (2), including the right to file such applications on said inventions and discoveries in the names of ASSIGNEE or their designees or in our/my name, at ASSIGNEE's election and in accordance with applicable law in all countries and regions; and the right to file all patent, utility model, or other applications in all countries and regions claiming the priority of any of the provisional or non-provisional application(s) identified in paragraphs (1) or (2);

(4) all rights to claim priority from any of the applications referred to in paragraphs (1), (2), and (3) or from any application from which any of the applications referred to in paragraphs (1), (2) and (3) claim priority in all countries and regions under the Paris Convention for the Protection of Industrial Property, the WTO GATT TRIPS Agreement, the Inter-American Convention relating to Inventions, Patents, Designs, and Industrial Models and all other international agreements to which the United States now is or hereafter becomes a signatory and, if the United States patent application is a provisional patent application, under 35 USC 119(e);

(5) all continuations, continuations-in-part, and divisionals of any United States patent application(s) or international patent application(s) designating the United States, any national stages of any international application(s), and any other patent application(s) described in paragraphs (1) through (4) hereof, including further continuations, continuations-in-part, and divisionals such as, but not limited to, continuations of continuations and continuations of divisionals;

(6) all patents, utility models, or other grants that issue from any of the applications referred to herein and all rights and remedies associated therewith including the right to sue for

and recover past damages and to recover under 35 U.S.C. § 154 (d) or any other law permitting remedies for infringement prior to issuance of the patent;

(7) all registrations and confirmations of, and importation certificates based upon, one or more of said patents, utility models, or other grants, and applications for such registrations, confirmations and importation certificates and;

(8) all reissues, renewals and extensions of said patents, utility models, registrations, confirmations and importation certificates, reexamination certificates issued for said patents and supplementary protection certificates based upon said patents and applications for such reissues, renewals, extensions, reexamination certificates and supplementary protection certificates, the same to be held and enjoyed by said ASSIGNEE to the full ends of the terms for which said patents, utility models, registrations, confirmations, importation certificates, reexamination certificates, supplementary protection certificates, reissues, renewals and extensions may be granted, as fully and entirely as the same would have been held and enjoyed by me/us if this sale, assignment and transfer had not been made.

I/We the Inventor(s) hereby authorize ASSIGNEE and their representatives to insert in paragraph (1) of this Assignment the filing date(s) and Application Number(s) of said patent, utility model, or other application(s) when notified thereof.

I/We the Inventor(s) hereby covenant and agree that I/We will, at any time, (i) upon the request, but at the expense, of ASSIGNEE, execute and deliver all documents that may be necessary or desirable to perfect the title to the foregoing inventions and discoveries, applications, patents, utility models, registrations, confirmations, importation certificates, reissues, renewals, extensions, reexamination certificates, supplementary protection certificates, and applications within the scope of (7) and (8), in ASSIGNEE, including the execution and procurement of all further documents evidencing this sale, assignment and transfer as may be necessary or desirable for recording the same in the patent office or other intellectual property office, agency or the like of any country or region, (ii) upon the request, but at the expense, of ASSIGNEE execute all additional applications within the scope of paragraphs (1) through (6) and all applications within the scope of (7) or (8), and (iii) make all rightful oaths and declarations and do all lawful acts requisite for procuring the same or for aiding therein, without further compensation, but at the expense of ASSIGNEE.

Should any provision of this Assignment be deemed invalid or unenforceable by reason of any law, statute, regulation or judgment, existing now or in the future in any jurisdiction, such provision shall be modified in such jurisdiction so as to nearly approximate the intent of the Parties. If this cannot be done, such invalid or unenforceable provision shall be divisible and be deleted in any such jurisdiction, and all other provisions shall remain in full force and effect. The modification or deletion of any provision in one jurisdiction shall have no effect on this Assignment in any other jurisdiction.

This Assignment shall be governed by the laws of Delaware.

This Assignment is effective as from the earliest priority date as stated above.

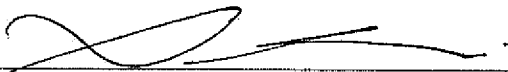
Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Christopher BECKER

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this 28th day of October, 2019

  
\_\_\_\_\_  
Xiaolin LI

Witness: Zi Zhong Li, Ph.D Philadelphia, PA, USA  
Printed Name:  
City, State and Country: Zi Zhong Li

Witness: Feng Shi, Ph.D., Beijing, P.R. China  
Printed Name:  
City, State and Country: Feng Shi

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Peichao LU

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Naomi Samadara RAJAPAKSA

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
David Charles TULLY

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Xiaojing Michael WANG

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:



Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Qian ZHAO

Witness: \_\_\_\_\_

Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_

Printed Name:  
City, State and Country:

Executed this 6th day of Dec, 2019

**NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.**

BY [Signature]  
Printed Name: Meredith Hopkins  
Authorized Signatory

Witness: [Signature]  
Printed Name: VIVIAN TRAN  
City, State and Country: 5300 Chiron Way  
Emeryville, CA 94608

Witness: [Signature]  
Printed Name: Lisa Nash  
City, State and Country: 5300 Chiron Way  
Emeryville, CA 94608

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ANTIVIRAL PYRIDOPYRAZINEDIONE COMPOUNDS

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Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Christopher BECKER

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Xiaolin LI

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Peichao LU

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Naomi Samadara RAJAPAKSA

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
David Charles TULLY

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

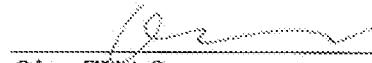
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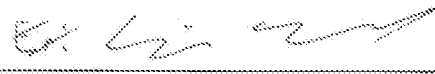
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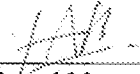
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Printed Name:  
City, State and Country:



Executed this 25<sup>th</sup> day of October, 2019

  
\_\_\_\_\_  
Qian ZHAO

Witness:   
\_\_\_\_\_  
Printed Name: Eric Newcomb  
City, State and Country: Boulder, CO USA

Witness:   
\_\_\_\_\_  
Printed Name: Aparna Herath  
City, State and Country: Boulder, CO, USA

Executed this 10th day of Dec, 2019

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

BY [Signature]  
Printed Name: Mark Hopkins  
Authorized Signatory

Witness: [Signature]  
Printed Name: VIVIAN TRON  
City, State and Country:

5300 Chiron Way  
Emeryville, CA 94608

Witness: [Signature]  
Printed Name: [Signature]  
City, State and Country:

5300 Chiron Way  
Emeryville, CA 94608

## ASSIGNMENT

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Christopher BECKER	citizen of United States of America	51 Harvard Road Stow, MA 01775 United States of America
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Naomi Samadara RAJAPAKSA	citizen of United States of America	1 DNA Way, MS 50, South San Francisco, CA 94080 United States of America
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(hereinafter "Inventor(s)"),

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ANTIVIRAL PYRIDOPYRAZINEDIONE COMPOUNDS

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(2) the application(s) identified in paragraph (1), and all applications claiming priority from such application(s), directly or indirectly, including all national stages of any international patent application(s);

(3) the right to file patent, utility model, or other applications on any invention or discovery disclosed in any of the applications identified in paragraphs (1) and (2), including the right to file such applications on said inventions and discoveries in the names of ASSIGNEE or their designees or in our/my name, at ASSIGNEE's election and in accordance with applicable law in all countries and regions; and the right to file all patent, utility model, or other applications in all countries and regions claiming the priority of any of the provisional or non-provisional application(s) identified in paragraphs (1) or (2);

(4) all rights to claim priority from any of the applications referred to in paragraphs (1), (2), and (3) or from any application from which any of the applications referred to in paragraphs (1), (2) and (3) claim priority in all countries and regions under the Paris Convention for the Protection of Industrial Property, the WTO GATT TRIPS Agreement, the Inter-American Convention relating to Inventions, Patents, Designs, and Industrial Models and all other international agreements to which the United States now is or hereafter becomes a signatory and, if the United States patent application is a provisional patent application, under 35 USC 119(e);

(5) all continuations, continuations-in-part, and divisionals of any United States patent application(s) or international patent application(s) designating the United States, any national stages of any international application(s), and any other patent application(s) described in paragraphs (1) through (4) hereof, including further continuations, continuations-in-part, and divisionals such as, but not limited to, continuations of continuations and continuations of divisionals;

(6) all patents, utility models, or other grants that issue from any of the applications referred to herein and all rights and remedies associated therewith including the right to sue for

and recover past damages and to recover under 35 U.S.C. § 154 (d) or any other law permitting remedies for infringement prior to issuance of the patent;

(7) all registrations and confirmations of, and importation certificates based upon, one or more of said patents, utility models, or other grants, and applications for such registrations, confirmations and importation certificates and;

(8) all reissues, renewals and extensions of said patents, utility models, registrations, confirmations and importation certificates, reexamination certificates issued for said patents and supplementary protection certificates based upon said patents and applications for such reissues, renewals, extensions, reexamination certificates and supplementary protection certificates, the same to be held and enjoyed by said ASSIGNEE to the full ends of the terms for which said patents, utility models, registrations, confirmations, importation certificates, reexamination certificates, supplementary protection certificates, reissues, renewals and extensions may be granted, as fully and entirely as the same would have been held and enjoyed by me/us if this sale, assignment and transfer had not been made.

I/We the Inventor(s) hereby authorize ASSIGNEE and their representatives to insert in paragraph (1) of this Assignment the filing date(s) and Application Number(s) of said patent, utility model, or other application(s) when notified thereof.

I/We the Inventor(s) hereby covenant and agree that I/We will, at any time, (i) upon the request, but at the expense, of ASSIGNEE, execute and deliver all documents that may be necessary or desirable to perfect the title to the foregoing inventions and discoveries, applications, patents, utility models, registrations, confirmations, importation certificates, reissues, renewals, extensions, reexamination certificates, supplementary protection certificates, and applications within the scope of (7) and (8), in ASSIGNEE, including the execution and procurement of all further documents evidencing this sale, assignment and transfer as may be necessary or desirable for recording the same in the patent office or other intellectual property office, agency or the like of any country or region, (ii) upon the request, but at the expense, of ASSIGNEE execute all additional applications within the scope of paragraphs (1) through (6) and all applications within the scope of (7) or (8), and (iii) make all rightful oaths and declarations and do all lawful acts requisite for procuring the same or for aiding therein, without further compensation, but at the expense of ASSIGNEE.

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This Assignment shall be governed by the laws of Delaware.

This Assignment is effective as from the earliest priority date as stated above.

Executed this 24 day of October, 2019

Christopher Becker  
Christopher BECKER

Witness: Kristen Terranova  
Printed Name: Kristen Terranova  
City, State and Country: Framingham, MA USA

Witness: JOHN L. KANE  
Printed Name: JOHN L. KANE  
City, State and Country: WALTHAM, MA USA

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

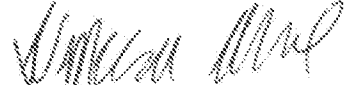
\_\_\_\_\_  
Xiaolin LI

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this 30<sup>th</sup> day of October, 2019

  
\_\_\_\_\_  
Peichao LU

Witness:   
\_\_\_\_\_  
Printed Name: Vanessa May  
City, State and Country:

5300 Chiron Way  
Emeryville, CA 94608

Witness:   
\_\_\_\_\_  
Printed Name: Lisa Post  
City, State and Country:

5300 Chiron Way  
Emeryville, CA 94608

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Naomi Samadara RAJAPAKSA

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this 28 day of October, 2019

David Charles Tully  
David Charles TULLY

Witness: [Signature]  
Printed Name: Michael Robinson  
City, State and Country: Emeryville, CA

Witness: [Signature]  
Printed Name: Lisa Rose  
City, State and Country: Emeryville, CA

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Xiaojing Michael WANG

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:



Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

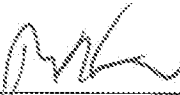
\_\_\_\_\_  
Qian ZHAO

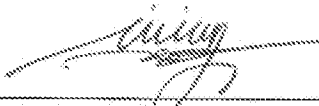
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Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

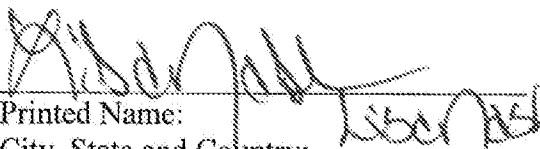
Executed this 04 day of Dec, 2019

**NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.**

BY   
Printed Name: Mark Hopkins  
Authorized Signatory

Witness:   
Printed Name: VIVIAN TRAN  
City, State and Country:

5300 Chiron Way  
Emeryville, CA 94608

Witness:   
Printed Name: Liban Patel  
City, State and Country:

5300 Chiron Way  
Emeryville, CA 94608

## ASSIGNMENT

This Assignment Agreement is entered into by and between:

Christopher BECKER	citizen of United States of America	51 Harvard Road Stow, MA 01775 United States of America
Xiaolin LI	citizen of China	19th Floor, Block D, Tsinghua Tongfang Hi-Tech Plaza, No.1 Wang Zhuang Road, Haidian, Beijing China
Peichao LU	citizen of China	Novartis Institutes for BioMedical Research Inc. 5300 Chiron Way Emeryville, CA 94608 United States of America
Naomi Samadara RAJAPAKSA	citizen of United States of America	1 DNA Way, MS 50, South San Francisco, CA 94080 United States of America
David Charles TULLY	citizen of United States of America	Novartis Institutes for Biomedical Research, Inc. 5300 Chiron Way Emeryville, California 94608 United States of America
Xiaojing Michael WANG	citizen of United States of America	3060 Chateau Way Livermore, CA 94550 United States of America
Qian ZHAO	citizen of China	681 St. Andrews Lane Louisville, CO 80027 United States of America

(hereinafter "Inventor(s)"),

and **NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.**, 250 Massachusetts Ave, Cambridge, Massachusetts 02139, USA, a company organized under the laws of Delaware.

For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, I/We the Inventor(s) do hereby confirm and agree that, by operation of law and/or contract, and/or by the fulfillment of any and all legal requirements regarding the transfer of employee inventions in my/our country of employment, **NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.** is the true and lawful owner of all right, title and interest in all inventions, discoveries, patents/utility models, applications, and rights described in paragraphs (1) through (8) below.

If, however, under the laws of any country, I/We the Inventor(s) nevertheless have any ownership right, title or interest in any of the items described herein (which I/We do not believe to be the case and make no claim in or to), for good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, I/We the Inventor(s) do hereby sell, assign and transfer to **NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.** and its successors, assigns and legal representatives (hereinafter referred to collectively as the "ASSIGNEE"), all of my/our right, title and interest for all countries of the world in and to

(1) all of my/our inventions and discoveries described in the provisional or non-provisional patent, utility model, or other application(s) entitled

**ANTIVIRAL PYRIDOPYRAZINEDIONE COMPOUNDS**

and filed in the United States Patent and Trademark Office on September 12, 2019 and accorded Application Number 16/569,107;

(2) the application(s) identified in paragraph (1), and all applications claiming priority from such application(s), directly or indirectly, including all national stages of any international patent application(s);

(3) the right to file patent, utility model, or other applications on any invention or discovery disclosed in any of the applications identified in paragraphs (1) and (2), including the right to file such applications on said inventions and discoveries in the names of ASSIGNEE or their designees or in our/my name, at ASSIGNEE's election and in accordance with applicable law in all countries and regions; and the right to file all patent, utility model, or other applications in all countries and regions claiming the priority of any of the provisional or non-provisional application(s) identified in paragraphs (1) or (2);

(4) all rights to claim priority from any of the applications referred to in paragraphs (1), (2), and (3) or from any application from which any of the applications referred to in paragraphs (1), (2) and (3) claim priority in all countries and regions under the Paris Convention for the Protection of Industrial Property, the WTO GATT TRIPS Agreement, the Inter-American Convention relating to Inventions, Patents, Designs, and Industrial Models and all other international agreements to which the United States now is or hereafter becomes a signatory and, if the United States patent application is a provisional patent application, under 35 USC 119(e);

(5) all continuations, continuations-in-part, and divisionals of any United States patent application(s) or international patent application(s) designating the United States, any national stages of any international application(s), and any other patent application(s) described in paragraphs (1) through (4) hereof, including further continuations, continuations-in-part, and divisionals such as, but not limited to, continuations of continuations and continuations of divisionals;

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and recover past damages and to recover under 35 U.S.C. § 154 (d) or any other law permitting remedies for infringement prior to issuance of the patent;

(7) all registrations and confirmations of, and importation certificates based upon, one or more of said patents, utility models, or other grants, and applications for such registrations, confirmations and importation certificates and;

(8) all reissues, renewals and extensions of said patents, utility models, registrations, confirmations and importation certificates, reexamination certificates issued for said patents and supplementary protection certificates based upon said patents and applications for such reissues, renewals, extensions, reexamination certificates and supplementary protection certificates, the same to be held and enjoyed by said ASSIGNEE to the full ends of the terms for which said patents, utility models, registrations, confirmations, importation certificates, reexamination certificates, supplementary protection certificates, reissues, renewals and extensions may be granted, as fully and entirely as the same would have been held and enjoyed by me/us if this sale, assignment and transfer had not been made.

I/We the Inventor(s) hereby authorize ASSIGNEE and their representatives to insert in paragraph (1) of this Assignment the filing date(s) and Application Number(s) of said patent, utility model, or other application(s) when notified thereof.

I/We the Inventor(s) hereby covenant and agree that I/We will, at any time, (i) upon the request, but at the expense, of ASSIGNEE, execute and deliver all documents that may be necessary or desirable to perfect the title to the foregoing inventions and discoveries, applications, patents, utility models, registrations, confirmations, importation certificates, reissues, renewals, extensions, reexamination certificates, supplementary protection certificates, and applications within the scope of (7) and (8), in ASSIGNEE, including the execution and procurement of all further documents evidencing this sale, assignment and transfer as may be necessary or desirable for recording the same in the patent office or other intellectual property office, agency or the like of any country or region, (ii) upon the request, but at the expense, of ASSIGNEE execute all additional applications within the scope of paragraphs (1) through (6) and all applications within the scope of (7) or (8), and (iii) make all rightful oaths and declarations and do all lawful acts requisite for procuring the same or for aiding therein, without further compensation, but at the expense of ASSIGNEE.

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This Assignment shall be governed by the laws of Delaware.

This Assignment is effective as from the earliest priority date as stated above.

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Christopher BECKER

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Xiaolin LI

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Peichao LU

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Naomi Samadara RAJAPAKSA

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:


Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

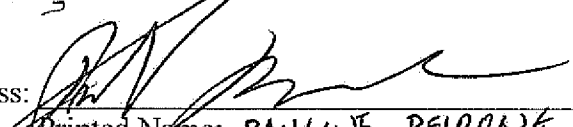
\_\_\_\_\_  
David Charles TULLY

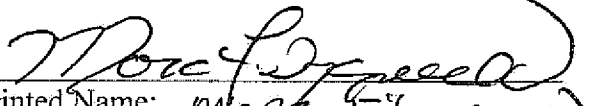
Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this 29 day of October, 2019

  
\_\_\_\_\_  
Xiaojing Michael WANG

Witness:   
\_\_\_\_\_  
Printed Name: PAULINE PEIRONK GU  
City, State and Country: Dublin, CA, USA

Witness:   
\_\_\_\_\_  
Printed Name: Marie Fitzgerald  
City, State and Country: Tracy, CA, USA



Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Qian ZHAO

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this 02 day of Dec, 2019

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

BY [Signature]  
Printed Name: Mark Hopkins  
Authorized Signatory

Witness: [Signature]  
Printed Name: VIVIAN TRAN  
City, State and Country:

5300 Chiron Way  
Emeryville, CA 94608

Witness: [Signature]  
Printed Name: Liton Pbh  
City, State and Country:

5300 Chiron Way  
Emeryville, CA 94608

**ASSIGNMENT**

This Assignment Agreement is entered into by and between:

Christopher BECKER	citizen of United States of America	51 Harvard Road Stow, MA 01775 United States of America
Xiaolin LI	citizen of China	19th Floor, Block D, Tsinghua Tongfang Hi-Tech Plaza, No.1 Wang Zhuang Road, Haidian, Beijing China
Peichao LU	citizen of China	Novartis Institutes for BioMedical Research Inc. 5300 Chiron Way Emeryville, CA 94608 United States of America
Naomi Samadara RAJAPAKSA	citizen of United States of America	1 DNA Way, MS 50, South San Francisco, CA 94080 United States of America
David Charles TULLY	citizen of United States of America	Novartis Institutes for Biomedical Research, Inc. 5300 Chiron Way Emeryville, California 94608 United States of America
Xiaojing Michael WANG	citizen of United States of America	3060 Chateau Way Livermore, CA 94550 United States of America
Qian ZHAO	citizen of China	681 St. Andrews Lane Louisville, CO 80027 United States of America

(hereinafter "Inventor(s)"),

and **NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.**, 250 Massachusetts Ave, Cambridge, Massachusetts 02139, USA, a company organized under the laws of Delaware.

For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, I/We the Inventor(s) do hereby confirm and agree that, by operation of law and/or contract, and/or by the fulfillment of any and all legal requirements regarding the transfer of employee inventions in my/our country of employment, **NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.** is the true and lawful owner of all right, title and interest in all inventions, discoveries, patents/utility models, applications, and rights described in paragraphs (1) through (8) below.

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(1) all of my/our inventions and discoveries described in the provisional or non-provisional patent, utility model, or other application(s) entitled

**ANTIVIRAL PYRIDOPYRAZINEDIONE COMPOUNDS**

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This Assignment shall be governed by the laws of Delaware.

This Assignment is effective as from the earliest priority date as stated above.

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Christopher BECKER

Witness: \_\_\_\_\_

Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_

Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Xiaolin LI

Witness: \_\_\_\_\_

Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_

Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

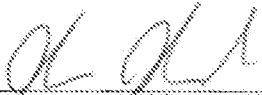
\_\_\_\_\_  
Peichao LU

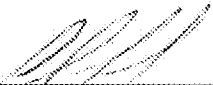
Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this 24 day of October, 2019

  
\_\_\_\_\_  
Naomi Samadara RAJAPAKSA

Witness:   
\_\_\_\_\_  
Printed Name: Kim Hoard  
City, State and Country: Berkeley, CA, USA

Witness:   
\_\_\_\_\_  
Printed Name: King Crawford  
City, State and Country: San Mateo, CA USA

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
David Charles TULLY

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

\_\_\_\_\_  
Xiaojing Michael WANG

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:



Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2019

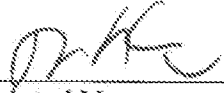
\_\_\_\_\_  
Qian ZHAO

Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:


Witness: \_\_\_\_\_  
Printed Name:  
City, State and Country:

Executed this 07<sup>th</sup> day of Dec, 2019

**NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.**

BY   
Printed Name: Marc Hopkins  
Authorized Signatory

Witness:   
Printed Name: VIVIAN TRAN  
City, State and Country: 5300 Chiron Way  
Emeryville, CA 94608

Witness:   
Printed Name: Vivian Tran  
City, State and Country: Emeryville, CA

5300 Chiron Way  
Emeryville, CA 94608