

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5644841

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
JENNIFER BROGDON	07/13/2015
EUGENE CHOI	07/14/2015
DAVID GLASS	07/13/2015
HEATHER HUET	07/13/2015
JOAN MANNICK	07/13/2015
LEON MURPHY	07/09/2015
CELESTE RICHARDSON	07/13/2015
RESHMA SINGH	07/14/2015
RECEIVING PARTY DATA	
Name:	NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.
Street Address:	250 MASSACHUSETTS AVENUE
City:	CAMBRIDGE
State/Country:	MASSACHUSETTS
Postal Code:	02139
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	16197565
CORRESPONDENCE DATA	
Fax Number:	(617)395-7070
<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>	
Phone:	(617) 395-7000
Email:	WZPatents@LALaw.com
Correspondent Name:	LANDO & ANASTASI, LLP
Address Line 1:	RIVERFRONT OFFICE PARK
Address Line 2:	ONE MAIN STREET, SUITE 1100
Address Line 4:	CAMBRIDGE, MASSACHUSETTS 02142
ATTORNEY DOCKET NUMBER:	N2067-704540
NAME OF SUBMITTER:	WEI ZHANG
SIGNATURE:	/Wei Zhang/

PATENT

DATE SIGNED:

07/31/2019

Total Attachments: 24

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ASSIGNMENT

WHEREAS, I, Jennifer Brogdon, a citizen of the United States of America, having a mailing address of Novartis Institutes for BioMedical Research, Inc., 250 Massachusetts Avenue, Cambridge, MA 02139, hereinafter generally referred to as "ASSIGNOR," have invented a certain new and useful

TREATMENT OF CANCER USING HUMANIZED ANTI-BCMA CHIMERIC ANTIGEN RECEPTOR

for which we have filed a PCT International Application on **July 21, 2014** and accorded International Patent Application Number **PCT/CN2014/082586**;

and filed a PCT International Application on **November 6, 2014** and accorded International Patent Number **PCT/CN2014/090501**;

and/or filed a PCT International Application on July 21, 2015 and accorded International Patent Application Number PCT/US2015/041378;

and/or filed in the United States Patent and Trademark Office on July 21, 2015 and accorded Application Number 14/805193;

AND, I appoint, authorize and request the attorneys appointed in said application to hereafter complete this assignment by inserting in the spaces provided above the filing date and serial number of said application when known;

AND, WHEREAS, **Novartis Institutes for BioMedical Research, Inc.** hereinafter referred to as the "ASSIGNEE", of 250 Massachusetts Ave, Cambridge, MA 02139, a company organized by the laws of **Delaware**, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and to any patent application(s) corresponding thereto, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries:

NOW, THEREFORE, for and in exchange for valuable consideration from the receipt of which is hereby acknowledged and intending to be bound, I, the said assignor, have sold, assigned, transferred and set over, effective as of the execution date of this assignment and by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said inventions or improvements and said provisional application and any and all corresponding patent application(s) and continuations, divisions and renewals of and substitutes for said corresponding patent application(s), and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and assign to and authorize said assignee, to file in my name corresponding patent applications for Letters Patent 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 respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me had this assignment, sale and transfer not been made.

AND I hereby covenant that I have full right to convey the entire interest herein assigned, and that I have not executed and will not execute any agreement in conflict herewith, and I further covenant and agree that I 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 inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and I agree to communicate to said assignee, or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, 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 I 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 of applications as aforesaid, to issue to said assignee, as assignee of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, 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, I have hereunto set my hand and seal.

July 13, 2015
Date

Jennifer Brogdon
Jennifer Brogdon

Witness Signature: [Signature]
Witness Printed Name: **Safya Watson**
700 Main Street
Cambridge, MA 02139

Date: 7/13/15


Witness Signature: [Signature]
Witness Printed Name:

Date: 7/13/15

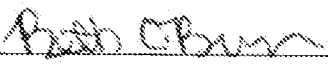
Beth O'Brien
700 Main Street
Cambridge, MA 02139

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH INC.

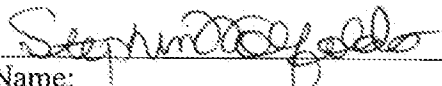
Executed this 13th day of July, 2015.

BY  L.S.
Name: Simonne Colvins
Title: Authorized Signatory

Witnessed by:


Name:
Address: **Beth O'Brien**

700 Main Street
Cambridge, MA 02139


Name: **Stephen Wolfolds**
Address: **700 Main Street**
Cambridge, MA 02139

ASSIGNMENT

WHEREAS, I, Celeste Richardson, a citizen of the United States of America, having a mailing address of Novartis Institutes for BioMedical Research, Inc., 220 Massachusetts Avenue, Cambridge, MA 02139, hereinafter generally referred to as "ASSIGNOR," have invented a certain new and useful

TREATMENT OF CANCER USING HUMANIZED ANTI-BCMA CHIMERIC ANTIGEN RECEPTOR

for which we have filed a PCT International Application on **July 21, 2014** and accorded International Patent Application Number **PCT/CN2014/082586**;

and filed a PCT International Application on **November 6, 2014** and accorded International Patent Number **PCT/CN2014/090501**;

and/or filed a PCT International Application on July 21, 20 15 and accorded International Patent Application Number PCT/ US2015/041378;

and/or filed in the United States Patent and Trademark Office on July 21, 20 15 and accorded Application Number 14/805193;

AND, I appoint, authorize and request the attorneys appointed in said application to hereafter complete this assignment by inserting in the spaces provided above the filing date and serial number of said application when known;

AND, WHEREAS, **Novartis Institutes for BioMedical Research, Inc.** hereinafter referred to as the "ASSIGNEE", of 250 Massachusetts Avenue, Cambridge, MA 02139, a company organized by the laws of **Delaware**, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and to any patent application(s) corresponding thereto, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries:

NOW, THEREFORE, for and in exchange for valuable consideration from the receipt of which is hereby acknowledged and intending to be bound, I, the said assignor, have sold, assigned, transferred and set over, effective as of the execution date of this assignment and by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said inventions or improvements and said provisional application and any and all corresponding patent application(s) and continuations, divisions and renewals of and substitutes for said corresponding patent application(s), and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and assign to and authorize said assignee, to file in my name corresponding patent applications for Letters Patent 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

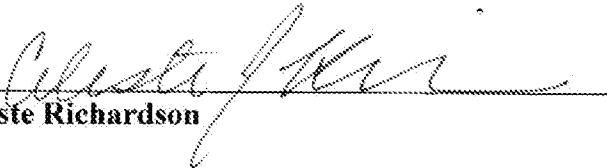
Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me had this assignment, sale and transfer not been made.

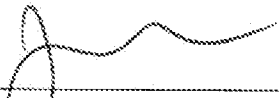
AND I hereby covenant that I have full right to convey the entire interest herein assigned, and that I have not executed and will not execute any agreement in conflict herewith, and I further covenant and agree that I will each time request is made and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and I agree to communicate to said assignee, or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, 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 I 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 of applications as aforesaid, to issue to said assignee, as assignee of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, 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.

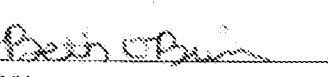
IN WITNESS WHEREOF, I have hereunto set my hand and seal.

July 13, 2015
Date


Celeste Richardson

Witness Signature: 
Witness Printed Name: **Safiya Watson**
700 Main Street
Cambridge, MA 02139

Date: 7/13/15

Witness Signature: 
Witness Printed Name:

Date: 7/13/15

Beth O'Brien
700 Main Street
Cambridge, MA 02139

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH INC.

Executed this 21st day of July, 2015.

BY *[Signature]* L.S.
Name: *[Signature]*
Title: Authorized Signatory

Witnessed by:

[Signature]
Name:
Address: **Beth O'Brien**

700 Main Street
Cambridge, MA 02139

[Signature]
Name: **Stephen Wolfolds**
Address:

700 Main Street
Cambridge, MA 02139

ASSIGNMENT

WHEREAS, I, David Glass, a citizen of the United States of America, having a mailing address of Novartis Institutes for BioMedical Research, Inc., 100 Technology Square, Cambridge, MA 02139, hereinafter generally referred to as "ASSIGNOR," have invented a certain new and useful

TREATMENT OF CANCER USING HUMANIZED ANTI-BCMA CHIMERIC ANTIGEN RECEPTOR

for which we have filed a PCT International Application on July 21, 2014 and accorded International Patent Application Number PCT/CN2014/082586;

and filed a PCT International Application on November 6, 2014 and accorded International Patent Number PCT/CN2014/090501;

and/or filed a PCT International Application on July 21, 2015 and accorded International Patent Application Number PCT/US2015/041378;

and/or filed in the United States Patent and Trademark Office on July 21, 2015 and accorded Application Number 14/805193;

AND, I appoint, authorize and request the attorneys appointed in said application to hereafter complete this assignment by inserting in the spaces provided above the filing date and serial number of said application when known;

AND, WHEREAS, **Novartis Institutes for BioMedical Research, Inc.**, hereinafter referred to as the "ASSIGNEE", of 250 Massachusetts Avenue, Cambridge, MA 02139, a company organized by the laws of **Delaware**, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and to any patent application(s) corresponding thereto, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries:

NOW, THEREFORE, for and in exchange for valuable consideration from the receipt of which is hereby acknowledged and intending to be bound, I, the said assignor, have sold, assigned, transferred and set over, effective as of the execution date of this assignment and by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said inventions or improvements and said provisional application and any and all corresponding patent application(s) and continuations, divisions and renewals of and substitutes for said corresponding patent application(s), and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and assign to and authorize said assignee, to file in my name corresponding patent applications for Letters Patent 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 respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me had this assignment, sale and transfer not been made.

AND I hereby covenant that I have full right to convey the entire interest herein assigned, and that I have not executed and will not execute any agreement in conflict herewith, and I further covenant and agree that I 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 inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and I agree to communicate to said assignee, or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, 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 I 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 of applications as aforesaid, to issue to said assignee, as assignee of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, 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, I have hereunto set my hand and seal.

13 July 2015 David Glass
Date David Glass

Witness Signature: Stephen Wolfolds Date: 7/13/2015
Witness Printed Name: **Stephen Wolfolds**


700 Main Street
Cambridge, MA 02139

Witness Signature: Beth O'Brien Date: 7/13/15
Witness Printed Name:

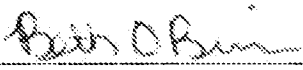
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700 Main Street
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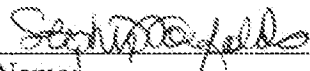
Executed this 15th day of July, 2015.

BY  L.S.
Name: Satiya Watson
Title: Authorized Signatory

Witnessed by:


Name: _____
Address: **Beth O'Brien**

700 Main Street
Cambridge, MA 02139


Name: _____
Address: **Stephen Wolfolds**

700 Main Street
Cambridge, MA 02139

ASSIGNMENT

WHEREAS, I, **Eugene Choi**, a citizen of the United States of America, having a mailing address of Novartis Institutes for BioMedical Research, Inc., 64 Sidney Street, Cambridge, MA 02139, hereinafter generally referred to as "ASSIGNOR," have invented a certain new and useful

TREATMENT OF CANCER USING HUMANIZED ANTI-BCMA CHIMERIC ANTIGEN RECEPTOR

for which we have filed a PCT International Application on **July 21, 2014** and accorded International Patent Application Number **PCT/CN2014/082586**;

and filed a PCT International Application on **November 6, 2014** and accorded International Patent Number **PCT/CN2014/090501**;

and/or filed a PCT International Application on July 21, 2015 and accorded International Patent Application Number PCT/US2015/041378;

and/or filed in the United States Patent and Trademark Office on July 21, 2015 and accorded Application Number 14/805193;

AND, I appoint, authorize and request the attorneys appointed in said application to hereafter complete this assignment by inserting in the spaces provided above the filing date and serial number of said application when known;

AND, WHEREAS, **Novartis Institutes for BioMedical Research, Inc.** hereinafter referred to as the "ASSIGNEE", of 250 Massachusetts Ave, Cambridge, MA 02139, a company organized by the laws of **Delaware**, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and to any patent application(s) corresponding thereto, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries:


NOW, THEREFORE, for and in exchange for valuable consideration from the receipt of which is hereby acknowledged and intending to be bound, I, the said assignor, have sold, assigned, transferred and set over, effective as of the execution date of this assignment and by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said inventions or improvements and said provisional application and any and all corresponding patent application(s) and continuations, divisions and renewals of and substitutes for said corresponding patent application(s), and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and assign to and authorize said assignee, to file in my name corresponding patent applications for Letters Patent 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 respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me had this assignment, sale and transfer not been made.

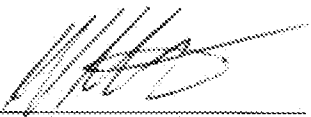
AND I hereby covenant that I have full right to convey the entire interest herein assigned, and that I have not executed and will not execute any agreement in conflict herewith, and I further covenant and agree that I will each time request is made and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and I agree to communicate to said assignee, or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, 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 I 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 of applications as aforesaid, to issue to said assignee, as assignee of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, 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, I have hereunto set my hand and seal.

7/14/2015
Date


Eugene Choi

Witness Signature: 
Date: 7-14-15
Witness Printed Name: Greg Motz
64 Spring St
Cambridge MA 02139

Witness Signature: 
Date: 7/14/15
Witness Printed Name:

Beth O'Brien
700 Main Street
Cambridge, MA 02139

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH INC.

Executed this 15th day of July, 2015.

BY [Signature] L.S.
Name: Safiya Watson
Title: Authorized Signatory

Witnessed by:

[Signature]
Name:
Address: **Beth O'Brien**

700 Main Street
Cambridge, MA 02139

[Signature]
Name:
Address: **Stephen Wolfelds**

700 Main Street
Cambridge, MA 02139

ASSIGNMENT

WHEREAS, I, Reshma Singh, a citizen of the United States of America, having a mailing address of Novartis Institutes for BioMedical Research, Inc., 250 Massachusetts Avenue, Cambridge, MA 02139, hereinafter generally referred to as "ASSIGNOR," have invented a certain new and useful

TREATMENT OF CANCER USING HUMANIZED ANTI-BCMA CHIMERIC ANTIGEN RECEPTOR

for which we have filed a PCT International Application on July 21, 2014 and accorded International Patent Application Number PCT/CN2014/082586;

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and/or filed a PCT International Application on July 21, 2015 and accorded International Patent Application Number PCT/US2015/041378;

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AND, I appoint, authorize and request the attorneys appointed in said application to hereafter complete this assignment by inserting in the spaces provided above the filing date and serial number of said application when known;

AND, WHEREAS, **Novartis Institutes for BioMedical Research, Inc.** hereinafter referred to as the "ASSIGNEE", of 250 Massachusetts Ave, Cambridge, MA 02139, a company organized by the laws of **Delaware**, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and to any patent application(s) corresponding thereto, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries:

NOW, THEREFORE, for and in exchange for valuable consideration from the receipt of which is hereby acknowledged and intending to be bound, I, the said assignor, have sold, assigned, transferred and set over, effective as of the execution date of this assignment and by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said inventions or improvements and said provisional application and any and all corresponding patent application(s) and continuations, divisions and renewals of and substitutes for said corresponding patent application(s), and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and assign to and authorize said assignee, to file in my name corresponding patent applications for Letters Patent 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 respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me had this assignment, sale and transfer not been made.

AND I hereby covenant that I have full right to convey the entire interest herein assigned, and that I have not executed and will not execute any agreement in conflict herewith, and I further covenant and agree that I 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 inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and I agree to communicate to said assignee, or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, 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.

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IN WITNESS WHEREOF, I have hereunto set my hand and seal.

July 14, 2015
Date

Reshma Singh
Reshma Singh

Witness Signature: [Signature]
Witness Printed Name:

Date: 7/14/15

Christine Hojden
250 Mass Ave
Cambridge, MA 02139

Witness Signature: [Signature]
Witness Printed Name:

Date: 7/14/15

Beth O'Brien
700 Main Street
Cambridge, MA 02139

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH INC.

Executed this 15th day of July, 2015.

BY [Signature] L.S.
Name: Safiya Watson
Title: Authorized Signatory

Witnessed by:

[Signature]
Name:
Address: **Beth O'Brien**

700 Main Street
Cambridge, MA 02139

[Signature]
Name: **Stephen Wolfolds**
Address:
700 Main Street
Cambridge, MA 02139

ASSIGNMENT

WHEREAS, I, Leon Murphy, a citizen of the United States of America, having a mailing address of Novartis Institutes for BioMedical Research, Inc., 250 Massachusetts Avenue, Cambridge, MA 02139, hereinafter generally referred to as "ASSIGNOR," have invented a certain new and useful

TREATMENT OF CANCER USING HUMANIZED ANTI-BCMA CHIMERIC ANTIGEN RECEPTOR

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and filed a PCT International Application on November 6, 2014 and accorded International Patent Number PCT/CN2014/090501;

and/or filed a PCT International Application on July 21, 2015 and accorded International Patent Application Number PCT/US2015/041378;

and/or filed in the United States Patent and Trademark Office on July 21, 2015 and accorded Application Number 14/805193;

AND, I appoint, authorize and request the attorneys appointed in said application to hereafter complete this assignment by inserting in the spaces provided above the filing date and serial number of said application when known;

AND, WHEREAS, **Novartis Institutes for BioMedical Research, Inc.**, hereinafter referred to as the "ASSIGNEE", of 250 Massachusetts Avenue, Cambridge, MA 02139, a company organized by the laws of **Delaware**, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and to any patent application(s) corresponding thereto, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries:

NOW, THEREFORE, for and in exchange for valuable consideration from the receipt of which is hereby acknowledged and intending to be bound, I, the said assignor, have sold, assigned, transferred and set over, effective as of the execution date of this assignment and by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said inventions or improvements and said provisional application and any and all corresponding patent application(s) and continuations, divisions and renewals of and substitutes for said corresponding patent application(s), and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and assign to and authorize said assignee, to file in my name corresponding patent applications for Letters Patent 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 respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me had this assignment, sale and transfer not been made.

AND I hereby covenant that I have full right to convey the entire interest herein assigned, and that I have not executed and will not execute any agreement in conflict herewith, and I further covenant and agree that I 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 inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and I agree to communicate to said assignee, or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, 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 I 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 of applications as aforesaid, to issue to said assignee, as assignee of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, 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, I have hereunto set my hand and seal.

July 9, 2015
Date

Leon
Leon Murphy


Witness Signature: Cheryl Patterson Date: 7/9/15
Witness Printed Name: Cheryl Patterson Munroe
900 Main St, Cambridge, MA 02139

Witness Signature: Stephen Wolfolds Date: 7/9/15
Witness Printed Name:

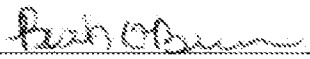
Stephen Wolfolds
700 Main Street
Cambridge, MA 02139

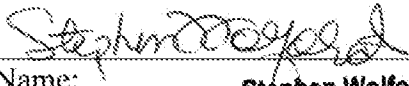
NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH INC.

Executed this 15th day of July, 20 .

BY  L.S.
Name: Safiya Watson
Title: Authorized Signatory

Witnessed by:


Name: _____
Address: **Beth O'Brien**
700 Main Street
Cambridge, MA 02139


Name: _____
Address: **Stephen Wolfolds**
700 Main Street
Cambridge, MA 02139

ASSIGNMENT

WHEREAS, I, Heather Huet, a citizen of the United States of America, having a mailing address of Novartis Institutes for BioMedical Research, Inc., 64 Sidney Street, Cambridge, MA 02139, hereinafter generally referred to as "ASSIGNOR," have invented a certain new and useful

TREATMENT OF CANCER USING HUMANIZED ANTI-BCMA CHIMERIC ANTIGEN RECEPTOR

for which we have filed a PCT International Application on **July 21, 2014** and accorded International Patent Application Number **PCT/CN2014/082586**;
and filed a PCT International Application on **November 6, 2014** and accorded International Patent Number **PCT/CN2014/090501**;
and/or filed a PCT International Application on July 21, 2015 and accorded International Patent Application Number PCT/US2015/041378;
and/or filed in the United States Patent and Trademark Office on July 21, 2015 and accorded Application Number 14/805193;

AND, I appoint, authorize and request the attorneys appointed in said application to hereafter complete this assignment by inserting in the spaces provided above the filing date and serial number of said application when known;

AND, WHEREAS, **Novartis Institutes for BioMedical Research, Inc.** hereinafter referred to as the "ASSIGNEE", of 250 Massachusetts Avenue, Cambridge, MA 02139, a company organized by the laws of **Delaware**, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and to any patent application(s) corresponding thereto, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries:

NOW, THEREFORE, for and in exchange for valuable consideration from the receipt of which is hereby acknowledged and intending to be bound, I, the said assignor, have sold, assigned, transferred and set over, effective as of the execution date of this assignment and by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said inventions or improvements and said provisional application and any and all corresponding patent application(s) and continuations, divisions and renewals of and substitutes for said corresponding patent application(s), and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and assign to and authorize said assignee, to file in my name corresponding patent applications for Letters Patent 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 respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me had this assignment, sale and transfer not been made.

AND I hereby covenant that I have full right to convey the entire interest herein assigned, and that I have not executed and will not execute any agreement in conflict herewith, and I further covenant and agree that I 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 inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and I agree to communicate to said assignee, or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, 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 I 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 of applications as aforesaid, to issue to said assignee, as assignee of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, 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, I have hereunto set my hand and seal.

July 13, 2015
Date

Heather Huet
Heather Huet

Witness Signature: Beth O'Brien
Witness Printed Name: **Beth O'Brien**

Date: July 13, 2015

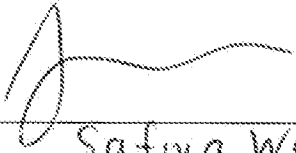
Witness Signature: Stephen Wolfolds
Witness Printed Name: **Stephen Wolfolds**

Date: July 13, 2015


700 Main Street
Cambridge, MA 02139

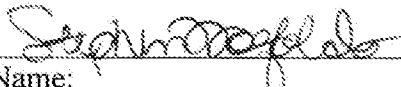
NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH INC.

Executed this 15th day of July, 2015.

BY  L.S.
Name: Safiya Watson
Title: Authorized Signatory

Witnessed by:


Name:
Address: **Beth O'Brien**
700 Main Street
Cambridge, MA 02139


Name:
Address: **Stephen Wolfolds**
700 Main Street
Cambridge, MA 02139

ASSIGNMENT

WHEREAS, I, **Joan Mannick**, a citizen of the United States of America, having a mailing address of Novartis Institutes for BioMedical Research, Inc., 220 Massachusetts Ave, Cambridge, MA 02139 hereinafter generally referred to as "ASSIGNOR," have invented a certain new and useful

TREATMENT OF CANCER USING HUMANIZED ANTI-BCMA CHIMERIC ANTIGEN RECEPTOR

for which we have filed a PCT International Application on July 21, 2014 and accorded International Patent Application Number PCT/CN2014/082586;

and filed a PCT International Application on November 6, 2014 and accorded International Patent Number PCT/CN2014/090501;

and/or filed a PCT International Application on July 21, 2015 and accorded International Patent Application Number PCT/US2015/041378;

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AND, WHEREAS, **Novartis Institutes for BioMedical Research, Inc.** hereinafter referred to as the "ASSIGNEE", of 250 Massachusetts Ave, Cambridge, MA 02139, a company organized by the laws of **Delaware**, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and to any patent application(s) corresponding thereto, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries:

NOW, THEREFORE, for and in exchange for valuable consideration from the receipt of which is hereby acknowledged and intending to be bound, I, the said assignor, have sold, assigned, transferred and set over, effective as of the execution date of this assignment and by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said inventions or improvements and said provisional application and any and all corresponding patent application(s) and continuations, divisions and renewals of and substitutes for said corresponding patent application(s), and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and assign to and authorize said assignee, to file in my name corresponding patent applications for Letters Patent 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 respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me had this assignment, sale and transfer not been made.


AND I hereby covenant that I have full right to convey the entire interest herein assigned, and that I have not executed and will not execute any agreement in conflict herewith, and I further covenant and agree that I 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 inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and I agree to communicate to said assignee, or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, 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 I 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 of applications as aforesaid, to issue to said assignee, as assignee of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, 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, I have hereunto set my hand and seal.


July 13, 2015
Date


Joan Mannick

Witness Signature: 
Witness Printed Name:

Safiya Watson
700 Main Street
Cambridge, MA 02139

Date: 7/13/15

Witness Signature: 
Witness Printed Name:

Beth O'Brien
700 Main Street
Cambridge, MA 02139

Date: 7/13/15

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH INC.

Executed this 15th day of July, 2015.

BY *Simone Carvian* L.S.
Name: Simone Carvian
Title: Authorized Signatory

Witnessed by:

Beth O'Brien
Name:
Address:
Beth O'Brien
700 Main Street
Cambridge, MA 02139

Stephen Wolfold
Name:
Address: **Stephen Wolfold**
700 Main Street
Cambridge, MA 02139