

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT6657533

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
HANS BITTER	10/03/2016
JENNIFER BROGDON	10/03/2016
STEVEN HIGHFILL	10/12/2016
LU HUANG	10/03/2016
MING LEI	10/05/2016
NA LI	10/05/2016
ANDREAS LOEW	10/02/2016
ELENA ORLANDO	10/03/2016
JIMIN ZHANG	10/03/2016
LI ZHOU	10/04/2016
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: 2	
Property Type	Number
Application Number:	16256731
Application Number:	16984806
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) 395-7034
Email:	CEJPatents@LALaw.com
Correspondent Name:	LANDO & ANASTASI, LLP
Address Line 1:	60 STATE STREET, 23RD FLOOR
Address Line 4:	BOSTON, MASSACHUSETTS 02109

ATTORNEY DOCKET NUMBER:	N2067-707240/41FT
NAME OF SUBMITTER:	CRISTIN E. JUDA
SIGNATURE:	/Cristin E. Juda/
DATE SIGNED:	04/15/2021

Total Attachments: 26

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ASSIGNMENT

WHEREAS, I/We, **Ming LEI**, a citizen of the People's Republic of China, having a mailing address of 200 Technology Square, Cambridge, MA 02139 US; and **Jimin ZHANG**, a citizen of the United States of America, having a mailing address of 250 Massachusetts Avenue, Cambridge, MA 02139 US; hereinafter generally referred to as "ASSIGNOR," has invented a certain new and useful

CD20 THERAPIES, CD22 THERAPIES, AND COMBINATION THERAPIES WITH A CD19 CHIMERIC ANTIGEN RECEPTOR (CAR)- EXPRESSING CELL

filed in the United States Patent and Trademark Office on **April 8, 2016** and accorded Patent Application No.: **15/094,674**;

and filed as a PCT Application on **April 8, 2016** and accorded International Application No.: **PCT/US2016/026655**;

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 Massachusetts, 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(s), 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, we, the said assignors, 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 our 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.

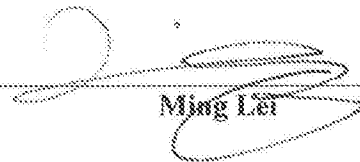
AND we hereby covenant that we have full right to convey the entire interest herein assigned, and that we have not executed and will not execute any agreement in conflict herewith, and we further covenant and agree that we will each time request is made and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the

title to said inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and we 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 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 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.

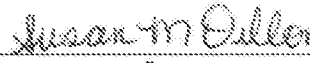
IN WITNESS WHEREOF, I have hereunto set my hand and seal.

Executed this 5 day of October, 2016.

BY  L.S.
Ming Lei

Witnessed by:

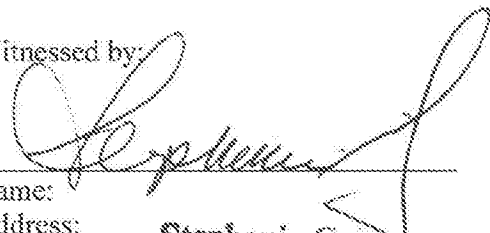

Name: Beth O'Brien
Address: 700 Main Street
Cambridge, MA 02139



Name: Susan M. Dillon
Address: 700 Main Street
Cambridge, MA 02139 US

Executed this 3 day of Oct, 2016.

BY  L.S.
Jimin Zhang

Witnessed by:


Name: Stephanie Gels
Address: 700 Main Street
Cambridge, MA 02139


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

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

Executed this 5 day of October, 2016.

BY [Signature] L.S.
Name: Scott W. Rieo
Title: Authorized Signatory

Witnessed by:

[Signature]
Name: Susan M. Dillon
Address: 700 Main Street
Cambridge, MA 02139 US

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

ASSIGNMENT

WHEREAS, I/We, **Lu HUANG**, a citizen of the United States of America, having a mailing address of 200 Technology Square, Cambridge, MA 02139 US; **Na LI**, a citizen of the People's Republic of China, having a mailing address of 200 Technology Square, Cambridge, MA 02139 US; **Andreas LOEW**, a citizen of the United States of America, having a mailing address of 250 Massachusetts Avenue, Cambridge, MA 02139 US; and **Li ZHOU**, a citizen of the United States of America, having a mailing address of 250 Massachusetts Avenue, Cambridge, MA 02139 US; hereinafter generally referred to as "ASSIGNOR," has invented a certain new and useful

TREATMENT OF CANCER USING A CD22 CHIMERIC ANTIGEN RECEPTOR

filed in the United States Patent and Trademark Office on **April 8, 2015** and accorded U.S. Provisional Patent Application No.: **62/144,615**;

and

COMBINATION THERAPIES WITH A CD19 CHIMERIC ANTIGEN RECEPTOR (CAR)- EXPRESSING CELL

filed in the United States Patent and Trademark Office on **April 8, 2015** and accorded U.S. Provisional Patent Application No.: **62/144,639**;

and filed in the United States Patent and Trademark Office on **August 19, 2015** and accorded U.S. Provisional Patent Application No.: **62/207,255**;

and filed in the United States Patent and Trademark Office on **December 4, 2015** and accorded U.S. Provisional Patent Application No.: **62/263,423**;

and

CD20 THERAPIES, CD22 THERAPIES, AND COMBINATION THERAPIES WITH A CD19 CHIMERIC ANTIGEN RECEPTOR (CAR)- EXPRESSING CELL

filed in the United States Patent and Trademark Office on **April 8, 2016** and accorded Patent Application No.: **15/094,674**;

and filed as a PCT Application on **April 8, 2016** and accorded International Application No.: **PCT/US2016/026655**;

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 Massachusetts, 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(s), 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, we, the said assignors, 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 our 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 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 inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and we 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 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 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.

Executed this _____ day of _____, 20____.

BY _____ L.S.
Lu Huang

Witnessed by:

Name:
Address:

Name:
Address:

Executed this _____ day of _____, 20____.

BY _____ L.S.
Na Li

Witnessed by:

Name:
Address:

Name:
Address:

Executed this 2 day of October, 2016.

BY [Signature] L.S.
Andreas Loew

Witnessed by:

① [Signature]
Name: STEPHANIE J MAIBLO
Address: 215 MASSACHUSETTS AVE
APT 15
ARLINGTON, MA 02474

② [Signature]
Name: BRIAN VASH
Address: 303 3RD ST UNIT 717
CAMBRIDGE, MA 02142

Executed this _____ day of _____, 20_____.

BY _____ L.S.
Li Zhou

Witnessed by:

Name:
Address:

Name:
Address:

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

Executed this 14 day of October, 2016.

BY [Signature] L.S.
Name: Kelly Strienberger, authorized signatory
Title: Authorized Signatory

Witnessed by:

[Signature]
Name: MAIRA FICHA
Address: East Hanover
New Jersey, USA

[Signature]
Name: Patricia A. Coffman
Address: East Hanover
New Jersey, USA

~~BY _____ L.S.
Name: _____
Title: Authorized Signatory~~

~~Witnessed by:~~

~~Name: _____
Address: _____~~

~~Name: _____
Address: _____~~

Executed this _____ day of _____, 20____.


BY _____ L.S.
Andreas Loew

Witnessed by:


Name: _____
Address: _____


Name: _____
Address: _____

Executed this 4 day of OCT, 2016

BY  L.S.
Li Zhou

Witnessed by:

① 
Name: NATHALIE BELRONITE
Address: 96 CERNICHE FLEURIE
06200 NICE
FRANCE

② 
Name: ASNAGLI Halano
Address: 13bis Avenue Marshal Juin
06270 Villeneuve-la-belle
FRANCE

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

Executed this 14 day of October, 2016.

BY [Signature] L.S.
Name: Kelly Sinterberger, authorized signatory
Title: Authorized Signatory

Witnessed by:

[Signature]
Name: MARIA ELIA
Address: East Hanover
NEW Jersey, USA

[Signature]
Name: Patricia A. Coffman
Address: East Hanover
NEW Jersey, USA

~~BY _____ L.S.
Name:
Title: Authorized Signatory~~

~~Witnessed by:~~

~~Name:
Address:~~

~~Name:
Address:~~

ASSIGNMENT

WHEREAS, I/We, **Lu HUANG**, a citizen of the United States of America, having a mailing address of 200 Technology Square, Cambridge, MA 02139 US; **Na LI**, a citizen of the People's Republic of China, having a mailing address of 200 Technology Square, Cambridge, MA 02139 US; **Andreas LOEW**, a citizen of the United States of America, having a mailing address of 250 Massachusetts Avenue, Cambridge, MA 02139 US; and **Li ZHOU**, a citizen of the United States of America, having a mailing address of 250 Massachusetts Avenue, Cambridge, MA 02139 US; hereinafter generally referred to as "ASSIGNOR," has invented a certain new and useful

TREATMENT OF CANCER USING A CD22 CHIMERIC ANTIGEN RECEPTOR

filed in the United States Patent and Trademark Office on **April 8, 2015** and accorded U.S. Provisional Patent Application No.: **62/144,615**;

and

COMBINATION THERAPIES WITH A CD19 CHIMERIC ANTIGEN RECEPTOR (CAR)- EXPRESSING CELL

filed in the United States Patent and Trademark Office on **April 8, 2015** and accorded U.S. Provisional Patent Application No.: **62/144,639**;

and filed in the United States Patent and Trademark Office on **August 19, 2015** and accorded U.S. Provisional Patent Application No.: **62/207,255**;

and filed in the United States Patent and Trademark Office on **December 4, 2015** and accorded U.S. Provisional Patent Application No.: **62/263,423**;

and

CD20 THERAPIES, CD22 THERAPIES, AND COMBINATION THERAPIES WITH A CD19 CHIMERIC ANTIGEN RECEPTOR (CAR)- EXPRESSING CELL

filed in the United States Patent and Trademark Office on **April 8, 2016** and accorded Patent Application No.: **15/094,674**;

and filed as a PCT Application on **April 8, 2016** and accorded International Application No.: **PCT/US2016/026655**;

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 Massachusetts, 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(s), 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, we, the said assignors, 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 our 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 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 inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and we 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 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 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.

Executed this 3 day of 2016.10, 2016.

BY Lu Huang L.S.
Lu Huang

Witnessed by:

Stephanie Geis
Name:
Address:

Stephanie Geis
700 Main Street
Cambridge, MA 02139

Beth O'Brien
Name:
Address:

Beth O'Brien
700 Main Street
Cambridge, MA 02139

Executed this 5th day of October, 2016.

BY Na Li L.S.
Na Li

Witnessed by:

Beth O'Brien
Name:
Address:

Beth O'Brien
700 Main Street
Cambridge, MA 02139

Susan M. Dillon
Name: Susan M. Dillon
Address: 700 Main Street
Cambridge, MA 02139 US

Executed this _____ day of _____, 20____.

BY _____ L.S.
Andreas Loew

Witnessed by:

Name:
Address:

Name:
Address:

Executed this _____ day of _____, 20____.

BY _____ L.S.
Li Zhou

Witnessed by:

Name:
Address:

Name:
Address:

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

Executed this 5 day of October, 2016.

BY [Signature] L.S.
Name: Scott W. Rizzo
Title: Authorized Signatory

Witnessed by:

[Signature: Susan M. Dillon]
Name: Susan M. Dillon
Address: 700 Main Street
Cambridge, MA 02139 US

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

ASSIGNMENT

WHEREAS, I/We, Jennifer BROGDON, a citizen of the United States of America, having a mailing address of 250 Massachusetts Avenue, Cambridge, MA 02139 US; and **Steven HIGHFILL**, a citizen of the United States of America, having a mailing address of 5015 Battery Lane, #1108, Bethesda, Maryland 20814 US; hereinafter generally referred to as "ASSIGNOR," has invented a certain new and useful

TREATMENT OF CANCER USING A CD22 CHIMERIC ANTIGEN RECEPTOR

filed in the United States Patent and Trademark Office on **April 8, 2015** and accorded U.S. Provisional Patent Application No.: **62/144,615**;

and

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and filed in the United States Patent and Trademark Office on **December 4, 2015** and accorded U.S. Provisional Patent Application No.: **62/263,423**;

and

TREATMENT OF CANCER USING A CD20 CHIMERIC ANTIGEN RECEPTOR

filed in the United States Patent and Trademark Office on **April 8, 2015** and accorded U.S. Provisional Patent Application No.: **62/144,497**;

and

CD20 THERAPIES, CD22 THERAPIES, AND COMBINATION THERAPIES WITH A CD19 CHIMERIC ANTIGEN RECEPTOR (CAR)- EXPRESSING CELL

filed in the United States Patent and Trademark Office on **April 8, 2016** and accorded Patent Application No.: **15/094,674**;

and filed as a PCT Application on **April 8, 2016** and accorded International Application No.: **PCT/US2016/026655**;

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NOW, THEREFORE, for and in exchange for valuable consideration from the receipt of which is hereby acknowledged and intending to be bound, we, the said assignors, 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 our 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.

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

Executed this 3 day of Oct, 2016.

BY Jennifer Brogdon L.S.
Jennifer Brogdon

Witnessed by:

Stephanie Geis
Name:
Address:
Stephanie Geis
700 Main Street
Cambridge, MA 02139

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

Executed this _____ day of _____, 20____.

BY _____ L.S.
Steven Highfill

Witnessed by:

Name:
Address:

Name:
Address:

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

Executed this 5 day of October, 2016

BY [Signature] L.S.
Name: Scott W. Reno
Title: Authorized Signatory

Witnessed by:

[Signature]
Name: Susan M. Dillon
Address: 700 Main Street
Cambridge, MA 02139 US

[Signature]
Name: Beth O'Brien
Address:

220 Massachusetts Avenue
Cambridge, MA 02139

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

Executed this _____ day of _____, 20____.

BY _____ L.S.
Jennifer Brogdon

Witnessed by:

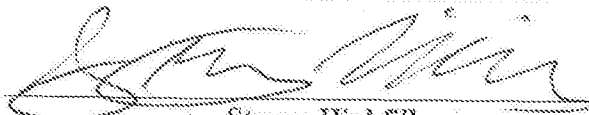
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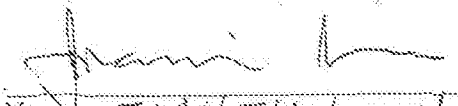
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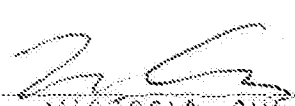
Address: _____

Executed this 12 day of October, 2016.

BY  L.S.
Steven Highfill

Witnessed by:

① 
Name: JIANJIAN JIN
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NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

Executed this 14 day of October, 2016.

BY Kelly Sittenberger L.S.
Name: Kelly Sittenberger, authorized signatory
Title: Authorized Signatory

Witnessed by:

Maria L. Fila
Name: MARIA FILA
Address: East Hanover
NEW JERSEY, USA

Patricia A. Coffman
Name: Patricia A. Coffman
Address: East Hanover
NEW JERSEY, USA

~~BY _____ L.S.
Name: _____
Title: Authorized Signatory~~

~~Witnessed by:~~

~~Name: _____
Address: _____~~

~~Name: _____
Address: _____~~

ASSIGNMENT

WHEREAS, I/We, **Hans BITTER**, a citizen of the United States of America, having a mailing address of 245 Tower Road, Lincoln, MA 01773 US; and **Elena ORLANDO**, a citizen of the United States of America, having a mailing address of 4 Gilson Ter., #1, Somerville, MA 02143 US; hereinafter generally referred to as "ASSIGNOR," has invented a certain new and useful

COMBINATION THERAPIES WITH A CD19 CHIMERIC ANTIGEN RECEPTOR (CAR)- EXPRESSING CELL

filed in the United States Patent and Trademark Office on **April 8, 2015** and accorded U.S. Provisional Patent Application No.: **62/144,639**;

and filed in the United States Patent and Trademark Office on **August 19, 2015** and accorded U.S. Provisional Patent Application No.: **62/207,255**;

and filed in the United States Patent and Trademark Office on **December 4, 2015** and accorded U.S. Provisional Patent Application No.: **62/263,423**;

and

CD20 THERAPIES, CD22 THERAPIES, AND COMBINATION THERAPIES WITH A CD19 CHIMERIC ANTIGEN RECEPTOR (CAR)- EXPRESSING CELL

filed in the United States Patent and Trademark Office on **April 8, 2016** and accorded Patent Application No.: **15/094,674**;

and filed as a PCT Application on **April 8, 2016** and accorded International Application No.: **PCT/US2016/026655**;

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 Massachusetts, 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(s), 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, we, the said assignors, 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 our 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 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 inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees or legal representatives, and we 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.

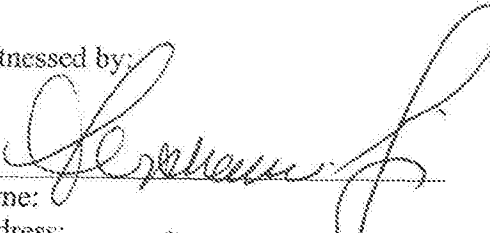
AND we hereby authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any country or countries foreign to the United States whose duty it is to issue patents of applications as aforesaid, to issue to said assignee, as assignee of the entire right, title 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.

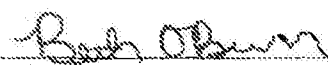
IN WITNESS WHEREOF, I have hereunto set my hand and seal.

Executed this 3rd day of October, 2016.

BY  L.S.
Hans Bitter

Witnessed by:

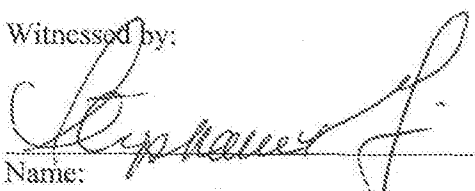

Name: Stephanie Gels
Address: 700 Main Street
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Name: Beth O'Brien
Address: 700 Main Street
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Executed this 3 day of October, 2016.

BY  L.S.
Elena Orlando

Witnessed by:


Name: Stephanie Gels
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Name: Beth O'Brien
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NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

Executed this 5 day of October, 2016.

BY [Signature] L.S.
Name: Scott A. Rao
Title: Authorized Signatory

Witnessed by:

[Signature: Susan M. Dillon]
Name: Susan M. Dillon
Address: 700 Main Street
Cambridge, MA 02139 US

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