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| PATENT ASSIGNMENT COVER SHEET |
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| SUBMISSION TYPE: | NEW ASSIGNMENT |
| NATURE OF CONVEYANCE: | ASSIGNMENT |
| CONVEYING PARTY DATA | |
| Name | Execution Date |
| HANS BITTER | 10/03/2016 |
| ELENA ORLANDO | 10/03/2016 |
| 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: 5 | |
| Property Type | Number |
| Application Number: | 62144639 |
| Application Number: | 62207255 |
| Application Number: | 62263423 |
| Application Number: | 15094674 |
| PCT Number: | US2016026655 |
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| SIGNATURE: | /Angela M. Grant/ |
| DATE SIGNED: | 03/02/2017 |

Total Attachments: 4

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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 [Signature] L.S.
Hans Bitter

Witnessed by:

[Signature]
Name: **Stephanie Gels**
Address: **700 Main Street
Cambridge, MA 02139**

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

Executed this 3 day of October, 2016.

BY [Signature] L.S.
Elena Orlando

Witnessed by:

[Signature]
Name: **Stephanie Gels**
Address: **700 Main Street
Cambridge, MA 02139**

[Signature]
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. Leo
Title: Authorized Signatory

Witnessed by:

[Signature]
Name: Susan M. Dillon
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Name: Beth O'Brien
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