

PATENT ASSIGNMENT COVER SHEET

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
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| CONVEYING PARTY DATA | |
| Name | Execution Date |
| THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA | 04/11/2019 |
| RECEIVING PARTY DATA | |
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| PROPERTY NUMBERS Total: 1 | |
| Property Type | Number |
| PCT Number: | US1550715 |
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| NAME OF SUBMITTER: | WEI ZHANG |
| SIGNATURE: | /Wei Zhang/ |
| DATE SIGNED: | 09/09/2019 |

Total Attachments: 4

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ASSIGNMENT

WHEREAS, we, **The Trustees Of The University Of Pennsylvania of 3160 Chestnut Street, Suite 200, Philadelphia, Pennsylvania 19104**, a university of higher education in Pennsylvania, hereinafter generally referred to as "ASSIGNOR," have acquired the entire right, title and interest in and to

TARGETING CYTOTOXIC CELLS WITH CHIMERIC RECEPTORS FOR ADOPTIVE IMMUNOTHERAPY

for which we have filed a PCT International Application on September 17, 2014 and accorded International Patent Application Number PCT/CN2014/086694;

and filed a PCT International Application on November 7, 2014 and accorded International Patent Number PCT/CN2014/090578;

and/or filed a PCT International Application on September 17, 2015 and accorded International Patent Application Number PCT/US2015/050715;

and/or filed in the United States Patent and Trademark Office on March 16, 2017 and accorded Application Number 15/511,973;

AND, WHEREAS, **The Trustees Of The University Of Pennsylvania of 3160 Chestnut Street, Suite 200, Philadelphia, Pennsylvania 19104**, a university of higher education in Pennsylvania, and **Novartis AG**, a company incorporated in Switzerland whose address is **Lichtstrasse 35, 4056 Basel, Switzerland**, hereinafter referred to as the "ASSIGNEES", are 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, we, 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 assignees, the entire right, title and interest in and to said inventions or improvements and said 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 assignees, to file in our names corresponding patent applications for Letters Patent in all countries, the same to be held and enjoyed by said assignees, 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 us had this assignment, sale and transfer not been made.

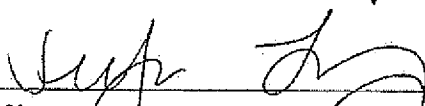
AND we hereby covenant that we have full right to convey the entire interest herein assigned, and that we have not executed and will not execute any agreement in conflict herewith, and we further covenant and agree that we will each time request is made and without undue delay, execute and deliver all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

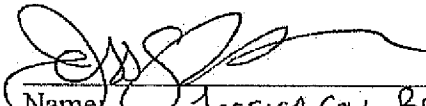
IN WITNESS WHEREOF, we have hereunto set our hand and seal.

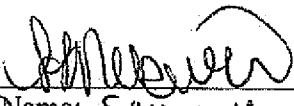
THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA

Executed this 11th day of April, 2019

BY  L.S.
Name: Jennifer Langenberger
Title: Chief Operations Officer

Witnessed by:


Name: Jessica Caryk Brennan
Address: 3160 Chestnut St. Phila, PA


Name: Samantha Neiswender
Address: 3160 Chestnut St. Ste 200
Philadelphia, PA 19104

NOVARTIS AG

Executed this 14 day of August, 2019.

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

Witnessed by:

[Signature]
Name: **Amanda A. Smith**
Address: **700 Main Street
Cambridge, MA 02139**

[Signature]
Name: **Safiya Watson**
Address: **700 Main Street
Cambridge, MA 02139**

Executed this 14th day of AUGUST, 2019.

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

Witnessed by:

[Signature]
Name: **Amanda A. Smith**
Address: **700 Main Street
Cambridge, MA 02139**

[Signature]
Name: **Safiya Watson**
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Cambridge, MA 02139**