

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
SEQUENCE:	1
CONVEYING PARTY DATA	
Name	Execution Date
YONGQIN WAN	05/15/2015
XING WANG	05/15/2015
SHIFENG PAN	05/19/2015
TETSUO UNO	05/18/2015
JAN GRUNEWALD	05/15/2015
BERNHARD HUBERT GEIERSTANGER	01/06/2017
WEIJIA OU	01/06/2017
RECEIVING PARTY DATA	
Name:	NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC., DBA GENOMICS INSTITUTE OF THE NOVARTIS RESEARCH FOUNDATION
Street Address:	10675 JOHN JAY HOPKINS DRIVE
City:	SAN DIEGO
State/Country:	CALIFORNIA
Postal Code:	92121
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	15317532
CORRESPONDENCE DATA	
Fax Number:	(858)332-4366
<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:	858-812-1617
Email:	ssesnovich@gnf.org
Correspondent Name:	DANIEL E. RAYMOND, PH.D.
Address Line 1:	10675 JOHN JAY HOPKINS DRIVE
Address Line 4:	SAN DIEGO, CALIFORNIA 92121
ATTORNEY DOCKET NUMBER:	PAT055898-US-PCT
NAME OF SUBMITTER:	DANIEL E. RAYMOND
SIGNATURE:	/Daniel E. Raymond/

DATE SIGNED:	03/09/2017
Total Attachments: 25 source=PAT055898-US-PCT assignment inventors to NIFG#page1.tif source=PAT055898-US-PCT assignment inventors to NIFG#page2.tif source=PAT055898-US-PCT assignment inventors to NIFG#page3.tif source=PAT055898-US-PCT assignment inventors to NIFG#page4.tif source=PAT055898-US-PCT assignment inventors to NIFG#page5.tif source=PAT055898-US-PCT assignment inventors to NIFG#page6.tif source=PAT055898-US-PCT assignment inventors to NIFG#page7.tif source=PAT055898-US-PCT assignment inventors to NIFG#page8.tif source=PAT055898-US-PCT assignment inventors to NIFG#page9.tif source=PAT055898-US-PCT assignment inventors to NIFG#page10.tif source=PAT055898-US-PCT assignment inventors to NIFG#page11.tif source=PAT055898-US-PCT assignment inventors to NIFG#page12.tif source=PAT055898-US-PCT assignment inventors to NIFG#page13.tif source=PAT055898-US-PCT assignment inventors to NIFG#page14.tif source=PAT055898-US-PCT assignment inventors to NIFG#page15.tif source=PAT055898-US-PCT assignment inventors to NIFG#page16.tif source=PAT055898-US-PCT assignment inventors to NIFG#page17.tif source=PAT055898-US-PCT assignment inventors to NIFG#page18.tif source=PAT055898-US-PCT assignment inventors to NIFG#page19.tif source=PAT055898-US-PCT assignment inventors to NIFG#page20.tif source=PAT055898-US-PCT assignment inventors to NIFG#page21.tif source=PAT055898-US-PCT assignment inventors to NIFG#page22.tif source=PAT055898-US-PCT assignment inventors to NIFG#page23.tif source=PAT055898-US-PCT assignment inventors to NIFG#page24.tif source=PAT055898-US-PCT assignment inventors to NIFG#page25.tif	

ASSIGNMENT

This Assignment Agreement is entered into by and between

Yongqin WAN	citizen of United States of America	Novartis Institute for Functional Genomics, Inc. dba Genomics Institute of the Novartis Research (GNF) 10675 John Jay Hopkins Drive San Diego, CA 92121 US
Xing WANG	citizen of China	Novartis Institute for Functional Genomics, Inc. dba Genomics Institute of the Novartis Research (GNF) 10675 John Jay Hopkins Drive San Diego, CA 92121 US
Shifeng PAN	citizen of United States of America	Novartis Institute for Functional Genomics, Inc. dba Genomics Institute of the Novartis Research Foundation (GNF) 10675 John Jay Hopkins Drive San Diego, CA 92121 US
Tetsuo UNO	citizen of Japan	Novartis Institute for Functional Genomics, Inc. dba Genomics Institute of the Novartis Research Foundation (GNF) 10675 John Jay Hopkins Drive San Diego, CA 92121 US
Jan GRUNEWALD	citizen of Germany	Novartis Institute for Functional Genomics, Inc. dba Genomics Institute of the Novartis Research Foundation (GNF) 10675 John Jay Hopkins Drive San Diego, CA 92121 US

c/o NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC., dba Genomics Institute of the Novartis Research Foundation, 10675 John Jay Hopkins Drive, San Diego, California 92121, USA, (hereinafter "Inventor(s)"), and the **NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC.**, dba the GENOMICS INSTITUTE OF THE NOVARTIS RESEARCH FOUNDATION (GNF), 10675 John Jay Hopkins Drive, San Diego, California 92121, USA, a company organized under the laws of the State of Delaware.

For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, I/We the Inventor(s) do hereby confirm and agree that, by operation of law

and/or contract, and/or by the fulfillment of any and all legal requirements regarding the transfer of employee inventions in my/our country of employment, GNF is the true and lawful owner of all right, title and interest in all inventions, discoveries, patents/utility models, applications, and rights described in paragraphs (1) through (8) below.

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

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

**CYTOTOXIC PEPTIDES AND CONJUGATES THEREOF
(Patent Case PAT055898)**

and filed in the US Receiving Office on _____, 20____ and accorded Application Number _____ and/or filed as a PCT International Application on _____, 20____ and accorded International Patent Application Number PCT/_____; and/or filed in the United States Patent and Trademark Office on **June 13, 2014** and accorded Application Number **62/011961**;

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

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

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

(5) all continuations, continuations-in-part, and divisionals of any United States patent application(s) or international patent application(s) designating the United States, any national stages of any international application(s), and any other patent application(s)

described in paragraphs (1) through (4) hereof, including further continuations, continuations-in-part, and divisionals such as, but not limited to, continuations of continuations and continuations of divisionals;

(6) all patents, utility models, or other grants that issue from any of the applications referred to herein and all rights and remedies associated therewith including the right to sue for and recover past damages and to recover under 35 U.S.C. § 154 (d) or any other law permitting remedies for infringement prior to issuance of the patent;

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

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

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

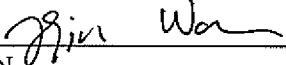
I/We the Inventor(s) hereby covenant and agree that I/We will, at any time, (i) upon the request, but at the expense, of ASSIGNEE, execute and deliver all documents that may be necessary or desirable to perfect the title to the foregoing inventions and discoveries, applications, patents, utility models,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

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


This Assignment shall be governed by the laws of Delaware.

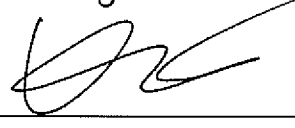
This Assignment is effective as from the earliest priority date as stated above.

Executed this 15th day of May, 20 15.

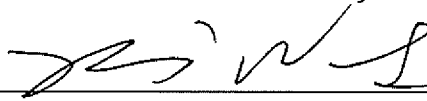
BY  L.S.
Yongqin WAN

Names, Addresses and signatures of two witnesses:

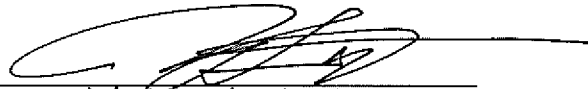
1. 
Name: Xia Wang
Address: 8409 Alpine Ridge Road,
San Diego, CA 92129

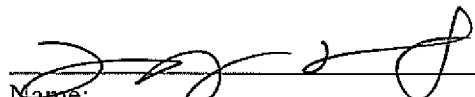
2. 
Name: Yang Yang
Address: 3644 Berryfield Ct
San Diego, CA 92130

Executed this 15th day of May, 2015.

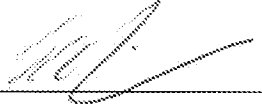
BY  L.S.
Xing WANG

Names, Addresses and signatures of two witnesses:

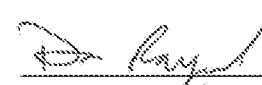
1. 
Name: YAHU A. LIU
Address: 7548 CHARMANT DR. #1414
SAN DIEGO, CA 92122

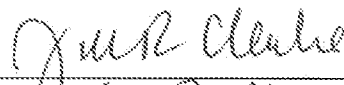
2. 
Name: ZHIHONG HUANG
Address: 10675 John J. Hopkins Dr.
San Diego, CA 92121

Executed this 19th day of May, 2015

BY  L.S.
Shifeng PAN

Names, Addresses and signatures of two witnesses:


1. 
Name: DANIEL RAYMOND
Address: 10675 JOHN JAY HOPKINS DR, SAN DIEGO CA USA 92121


2. 
Name: JILL R CLARKE
Address: 10675 John Jay Hopkins Drive
San Diego, CA 92121 US

Executed this 18 day of May, 2015.

BY Tetsuo Uno L.S.
Tetsuo UNO

Names, Addresses and signatures of two witnesses:


1. Jiqing Jiang
Name:
Address: 8323 Bryn Glen Way
San Diego, CA 92129


2. _____
Name: DONG HAN
Address: 7876 Inception Way
San Diego, CA 92108

Executed this _____ day of _____, 20____.

BY _____ L.S.
Jan GRUNEWALD

Names, Addresses and signatures of two witnesses:

1. _____
Name:
Address:

2. _____
Name:
Address:

NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC., dba the Genomics
Institute of the Novartis Research Foundation

Executed this 19 day of May, 2015

BY Julie McCarthy L.S.
Julie McCarthy

Witnessed by:

Julie Clarke
Name: Julie Clarke
Address: 10075 John Jay Hopkins Dr
San Diego, CA 92121 US

Susan Sesnovich
Name: SUSAN SESNOVICH
Address: 10675 JOHN WAY HOPKINS DR
SAN DIEGO, CA 92121 US

ASSIGNMENT

This Assignment Agreement is entered into by and between

Yongqin WAN	citizen of United States of America	Novartis Institute for Functional Genomics, Inc. dba Genomics Institute of the Novartis Research (GNF) 10675 John Jay Hopkins Drive San Diego, CA 92121 US
Xing WANG	citizen of China	Novartis Institute for Functional Genomics, Inc. dba Genomics Institute of the Novartis Research (GNF) 10675 John Jay Hopkins Drive San Diego, CA 92121 US
Shifeng PAN	citizen of United States of America	Novartis Institute for Functional Genomics, Inc. dba Genomics Institute of the Novartis Research Foundation (GNF) 10675 John Jay Hopkins Drive San Diego, CA 92121 US
Tetsuo UNO	citizen of Japan	Novartis Institute for Functional Genomics, Inc. dba Genomics Institute of the Novartis Research Foundation (GNF) 10675 John Jay Hopkins Drive San Diego, CA 92121 US
Jan GRUNEWALD	citizen of Germany	Novartis Institute for Functional Genomics, Inc. dba Genomics Institute of the Novartis Research Foundation (GNF) 10675 John Jay Hopkins Drive San Diego, CA 92121 US

c/o NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC., dba Genomics Institute of the Novartis Research Foundation, 10675 John Jay Hopkins Drive, San Diego, California 92121, USA, (hereinafter "Inventor(s)"), and the **NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC.**, dba the GENOMICS INSTITUTE OF THE NOVARTIS RESEARCH FOUNDATION (GNF), 10675 John Jay Hopkins Drive, San Diego, California 92121, USA, a company organized under the laws of the State of Delaware.

For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, I/We the Inventor(s) do hereby confirm and agree that, by operation of law

and/or contract, and/or by the fulfillment of any and all legal requirements regarding the transfer of employee inventions in my/our country of employment, GNF is the true and lawful owner of all right, title and interest in all inventions, discoveries, patents/utility models, applications, and rights described in paragraphs (1) through (8) below.

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

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

**CYTOTOXIC PEPTIDES AND CONJUGATES THEREOF
(Patent Case PAT055898)**

and filed in the US Receiving Office on _____, 20____ and accorded Application Number _____ and/or filed as a PCT International Application on _____, 20____ and accorded International Patent Application Number PCT/_____; and/or filed in the United States Patent and Trademark Office on **June 13, 2014** and accorded Application Number **62/011961**;

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

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

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

(5) all continuations, continuations-in-part, and divisionals of any United States patent application(s) or international patent application(s) designating the United States, any national stages of any international application(s), and any other patent application(s)

described in paragraphs (1) through (4) hereof, including further continuations, continuations-in-part, and divisionals such as, but not limited to, continuations of continuations and continuations of divisionals;

(6) all patents, utility models, or other grants that issue from any of the applications referred to herein and all rights and remedies associated therewith including the right to sue for and recover past damages and to recover under 35 U.S.C. § 154 (d) or any other law permitting remedies for infringement prior to issuance of the patent;

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

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

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

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

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

This Assignment shall be governed by the laws of Delaware.

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

Executed this _____ day of _____, 20____.

BY _____ L.S.
Yongqin WAN

Names, Addresses and signatures of two witnesses:

1. _____
Name:
Address:

2. _____
Name:
Address:

Executed this _____ day of _____, 20____.

BY _____ L.S.
Xing WANG

Names, Addresses and signatures of two witnesses:

1. _____
Name:
Address:

2. _____
Name:
Address:

Executed this _____ day of _____, 20____.

BY _____ L.S.
Shifeng PAN

Names, Addresses and signatures of two witnesses:

1. _____
Name:
Address:

2. _____
Name:
Address:

Executed this _____ day of _____, 20____.

BY _____ L.S.
Tetsuo UNO

Names, Addresses and signatures of two witnesses:

1. _____
Name:
Address:

2. _____
Name:
Address:

Executed this 15 day of May, 2015.

BY Jan Grunwald L.S.
Jan GRUNEWALD

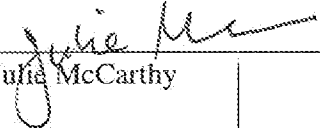
Names, Addresses and signatures of two witnesses:

1. Andreas Krensch
Name: ANDREAS KRENSCH
Address: 1650 EMERALD ST. #20
SAN DIEGO, CA 92109

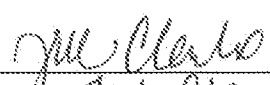
2. Susan Cellitti
Name: Susan Cellitti
Address: 3515 Sydney Pl.
San Diego, CA 92116

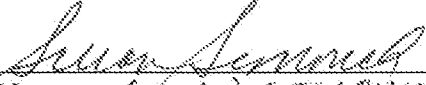
NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC., dba the Genomics
Institute of the Novartis Research Foundation

Executed this 19 day of May, 2005

BY  L.S.
Julia McCarthy

Witnessed by:


Name: Jill Clarke
Address: PO Box John Jay Hopkins Dr
San Diego, CA 92121


Name: SUSAN SESLOVICH
Address: 10675 JOHN JAY HOPKINS DR
SAN DIEGO CA 92161

ASSIGNMENT

This Assignment Agreement is entered into by and between **BERNHARD HUBERT GEIERSTANGER, c/o NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC., dba GENOMICS INSTITUTE OF THE NOVARTIS RESEARCH FOUNDATION (GNF), 10675 JOHN JAY HOPKINS DRIVE, SAN DIEGO, CA 92121, US, a citizen of GERMANY** and **WEIJIA OU, c/o NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC., dba GENOMICS INSTITUTE OF THE NOVARTIS RESEARCH FOUNDATION (GNF), 10675 JOHN JAY HOPKINS DRIVE, SAN DIEGO, CA 92121, US, a citizen of UNITED STATES OF AMERICA** (hereinafter "Inventor(s)"), and **NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC., 10675 JOHN JAY HOPKINS DRIVE, SAN DIEGO, CA 92121 US, a company organized under the laws of THE STATE OF DELAWARE.**

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

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

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CYTOTOXIC PEPTIDES AND CONJUGATES THEREOF

and filed in the United States Patent and Trademark Office on 13 Jun, 2014 and accorded Application Number 62/011961 and/or filed as a PCT International Application on _____ and accorded International Patent Application Number PCT/_____;

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

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

(6) all patents, utility models, or other grants that issue from any of the applications referred to herein and all rights and remedies associated therewith including the right to sue for and recover past damages and to recover under 35 U.S.C. § 154 (d) or any other law permitting remedies for infringement prior to issuance of the patent;

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

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

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

I/We the Inventor(s) hereby covenant and agree that I/We will, at any time, (i) upon the request, but at the expense, of ASSIGNEE, execute and deliver all documents that may be

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

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

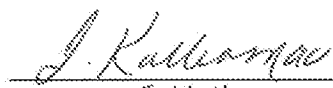
This Assignment shall be governed by the law of the State of Delaware.

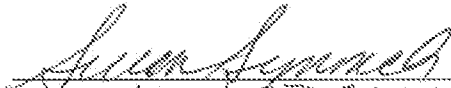
This Assignment is effective as from the earliest priority date as stated above.

Executed this 6th day of January, 2017

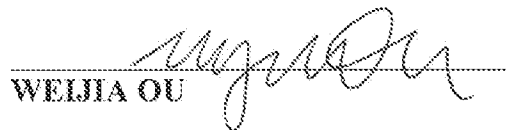

BERNHARD HUBERT GEIERSTANGER

Witnessed by:



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**NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC., dba the Genomics
Institute of the Novartis Research Foundation**

Executed this 10th day of January, 2017

BY Julie McCarthy
Julie McCarthy
General Counsel and Vice President Legal

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