

## PATENT ASSIGNMENT COVER SHEET

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT	
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT	
<b>CONVEYING PARTY DATA</b>		
	<b>Name</b>	<b>Execution Date</b>
	NOVARTIS INSTITUTE FOR FUNCTIONAL GENOMICS, INC.	03/03/2014
<b>RECEIVING PARTY DATA</b>		
<b>Name:</b>	IRM LLC	
<b>Street Address:</b>	131 FRONT STREET, PO BOX HM 2899	
<b>City:</b>	HAMILTON HM LX	
<b>State/Country:</b>	BERMUDA	
<b>PROPERTY NUMBERS Total: 1</b>		
	<b>Property Type</b>	<b>Number</b>
	<b>Application Number:</b>	14772209
<b>CORRESPONDENCE DATA</b>		
<b>Fax Number:</b>		
<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>		
<b>Phone:</b>	6178717967	
<b>Email:</b>	katie.drury@novartis.com	
<b>Correspondent Name:</b>	KATHLEEN M. DRURY	
<b>Address Line 1:</b>	700 MAIN STREET	
<b>Address Line 4:</b>	CAMBRIDGE, MASSACHUSETTS 02139	
<b>ATTORNEY DOCKET NUMBER:</b>	PAT055625-US-PCT	
<b>NAME OF SUBMITTER:</b>	KATHLEEN M. DRURY	
<b>SIGNATURE:</b>	/Kathleen M. Drury/	
<b>DATE SIGNED:</b>	02/22/2017	
<b>Total Attachments: 4</b>		
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## ASSIGNMENT

This Assignment Agreement is entered into by and between **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 Delaware, and **IRM LLC**, a company incorporated in the State of Delaware, whose address is 131 Front Street, PO Box HM 2899, Hamilton HM LX, Bermuda.

For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, GNF does hereby sell, assign and transfer to IRM LLC and its successors, assigns and legal representatives (hereinafter referred to collectively as the "ASSIGNEE"), all of its 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

### PEPTIDES AND COMPOSITIONS FOR TREATMENT OF JOINT DAMAGE [Patent Case PAT055625]

and filed in the (to be determined) Office on (to be determined) and accorded Application Number (to be determined) and/or filed as a PCT International Application on (to be determined) and accorded International Patent Application Number PCT (to be determined); and/or filed in the United States Patent and Trademark Office on February 10, 2014 and accorded Application Number 61/938,123.

(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 on behalf or in the name(s) of the inventor(s) of said inventions and discoveries, 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 GNF if this sale, assignment and transfer had not been made.

GNF hereby authorizes 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.

GNF hereby covenants and agrees that it 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 .

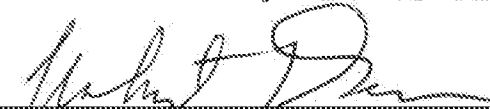
Should any provision of this Assignment be deemed invalid or unenforceable by reason of any law, statute, regulation or judgment, existing now or in the future in any jurisdiction, such provision shall be modified in such jurisdiction so as to nearly approximate the intent of the Parties. If this cannot 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.

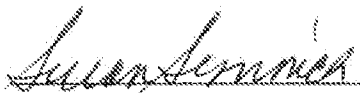
This Assignment is effective as from the earliest priority date as stated above.


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

Executed this 3 day of March, 2014

BY   
Robert Charles Downs

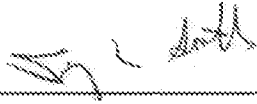
Witnessed by:

  
Name: SUSAN SEDOUCA  
Address: 10675 JOHN JAY HOPKINS  
DRIVE  
SAN DIEGO, CA 92121 US

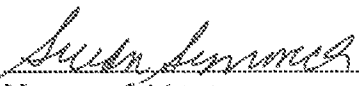
  
Name: LISA E. WATTS  
Address: 10675 John Jay Hopkins Dr.  
San Diego, CA 92121 US.

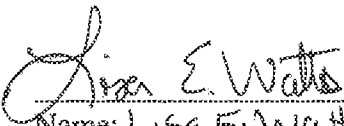
IRM LLC

Executed this 3<sup>rd</sup> day of March, 2014

BY   
Timothy L. Smith, J.D., Ph.D.,  
Authorized Signatory for IRM LLC

Witnessed by:

  
Name: SUSAN SEBROVICH  
Address: 10675 JOHN JAY HOPKINS  
DRIVE  
SAN DIEGO, CA 92121, US

  
Name: Lisa E. Watts  
Address: 10675 John Jay Hopkins Dr.  
San Diego, CA 92121 US