

PATENT ASSIGNMENT

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SUBMISSION TYPE:	NEW ASSIGNMENT								
NATURE OF CONVEYANCE:	ASSIGNMENT								
CONVEYING PARTY DATA									
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Victoria Sung</td> <td>10/23/2012</td> </tr> <tr> <td>William Michael Kavanaugh</td> <td>10/26/2012</td> </tr> <tr> <td>Sharon Lea Aukerman</td> <td>10/23/2012</td> </tr> </tbody> </table>		Name	Execution Date	Victoria Sung	10/23/2012	William Michael Kavanaugh	10/26/2012	Sharon Lea Aukerman	10/23/2012
Name	Execution Date								
Victoria Sung	10/23/2012								
William Michael Kavanaugh	10/26/2012								
Sharon Lea Aukerman	10/23/2012								
RECEIVING PARTY DATA									
Name:	Novartis Vaccines and Diagnostics, Inc.								
Street Address:	4560 Horton Street								
Internal Address:	Mail Stop X-100B								
City:	Emeryville								
State/Country:	CALIFORNIA								
Postal Code:	94608								
PROPERTY NUMBERS Total: 1									
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>11996905</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	11996905				
Property Type	Number								
Application Number:	11996905								
CORRESPONDENCE DATA									
Fax Number:	6178713392								
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>									
Phone:	(510) 923-2707								
Email:	lisa.nash@novartis.com								
Correspondent Name:	Novartis Institutes for BioMedical Res								
Address Line 1:	220 Massachusetts Avenue, 2nd Floor								
Address Line 2:	NIBR Patents								
Address Line 4:	Cambridge, MASSACHUSETTS 02139								
ATTORNEY DOCKET NUMBER:	PAT051839-US-PCT								
NAME OF SUBMITTER:	Lisa Nash								
Total Attachments: 12									

CH \$40.00 11996905

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source=51839-US-PCT executed Assignment#page12.tif

ASSIGNMENT

This Assignment Agreement is entered into by and between

Sharon Lea AUKERMAN	citizen of the United States of America	192 Windsor Place Madison, New Jersey 07940
William Michael KAVANAUGH	citizen of the United States of America	77 Orchard Road Orinda, California 94563
Victoria SUNG	citizen of the United States of America	109 Grand View Avenue San Francisco, California 94114

(hereinafter "Inventor(s)"), and **Novartis Vaccines and Diagnostics, Inc.**, 4560 Horton Street, Emeryville, CA 94608-2916, USA, a company organized under the laws 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 Vaccines and Diagnostics, 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 Vaccines and Diagnostics, 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

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

M-CSF-SPECIFIC MONOCLONAL ANTIBODY AND USES THEREOF

and filed in the US Patent and Trademark Office on November 18, 2009 and accorded Application Number 11/996,905 and/or filed as a PCT International Application on July 27, 2006 and accorded International Patent Application Number PCT/US06/29279; and/or filed in the United States Patent and Trademark Office on July 28, 2005, and accorded Application Number 60/703,218, and July 28, 2005, and accorded Application Number 60/703,314;

(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 _____, 2012

BY _____ L.S.
Sharon Lea AUKERMAN

Executed this _____ day of _____, 2012


BY _____ L.S.
William Michael KAVANAUGH

Executed this 23 day of October, 2012

BY Victoria Sung L.S.
Victoria SUNG

NOVARTIS VACCINES AND DIAGNOSTICS, INC.

Executed this 31 day of October, 2012

BY  L.S.
Lisa E. Alexander
Assistant Secretary

ASSIGNMENT

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M-CSF-SPECIFIC MONOCLONAL ANTIBODY AND USES THEREOF

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Executed this _____ day of _____, 2012

BY _____ L.S.
Sharon Lea AUKERMAN

Executed this 26th day of October 2012

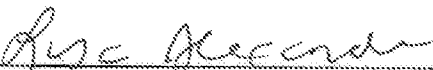
BY *William Michael Kavanaugh* L.S.
William Michael KAVANAUGH

Executed this _____ day of _____, 2012

BY _____ L.S.
Victoria SUNG

NOVARTIS VACCINES AND DIAGNOSTICS, INC.

Executed this 31 day of October, 2012

BY  L.S.
Lisa E. Alexander
Assistant Secretary

ASSIGNMENT

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William Michael KAVANAUGH	citizen of the United States of America	77 Orchard Road Orinda, California 94563
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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 23rd day of October, 2012

BY  L.S.
Sharon Lea AUKERMAN

Executed this _____ day of _____, 2012

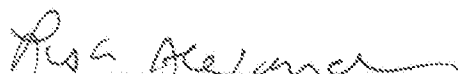
BY _____ L.S.
William Michael KAVANAUGH

Executed this _____ day of _____, 2012

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Victoria SUNG

NOVARTIS VACCINES AND DIAGNOSTICS, INC.

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BY  L.S.
Lisa E. Alexander
Assistant Secretary