

## PATENT ASSIGNMENT

Electronic Version v1.1  
 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
NOVARTIS VACCINES AND DIAGNOSTICS, INC.	03/04/2013
RECEIVING PARTY DATA	
Name:	NOVARTIS AG
Street Address:	LICHTSTRASSE 35
City:	BASEL
State/Country:	SWITZERLAND
Postal Code:	4056
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	13808153
CORRESPONDENCE DATA	
Fax Number:	5106553542
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>	
Phone:	(510) 923-2192
Email:	felicia.soria@novartis.com
Correspondent Name:	Helen Lee
Address Line 1:	4560 Horton Street
Address Line 2:	IP Services M/S X-100B
Address Line 4:	Emeryville, CALIFORNIA 94608-2916
ATTORNEY DOCKET NUMBER:	PAT054240-WO-PCT
NAME OF SUBMITTER:	Felicia Soria
Total Attachments: 5 source=Signed-Asg-Inc-to-AG-54240-WO-PCT#page1.tif source=Signed-Asg-Inc-to-AG-54240-WO-PCT#page2.tif source=Signed-Asg-Inc-to-AG-54240-WO-PCT#page3.tif source=Signed-Asg-Inc-to-AG-54240-WO-PCT#page4.tif source=Signed-Asg-Inc-to-AG-54240-WO-PCT#page5.tif	

CH \$40.00 13808153

RECORDATION FORM COVER SHEET  
PATENTS ONLY

Atty Docket No.: PAT054240-WO-PCT

To the Director of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):

Novartis Vaccines and Diagnostics, Inc.  
4560 Horton Street  
Emeryville, California  
94608-2916

Additional name(s) of conveying party(ies) attached?  Yes  No

2. Name and address of receiving party(ies)  
Name:

NOVARTIS AG  
Lichtstrasse 35  
4056 Basel  
SWITZERLAND

Other

Additional name(s) & address(es) attached?  Yes  No

3. Nature of conveyance:

- Assignment
- Security Agreement
- Joint Research Agreement
- Government Interest Assignment
- Executive Order 9424, Confirmatory License
- Merger
- Change of Name
- Other \_\_\_\_\_

Execution Date(s): 03/04/2013

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is: \_\_\_\_\_.

A. Patent Application No.(s)

PCT/US2011/043096 (now 13/808,153)  
filed July 6, 2011

B. Patent No.(s)

Additional number(s) attached  Yes  No

5. Name and address of party to whom correspondence concerning document should be mailed:

NOVARTIS VACCINES AND DIAGNOSTICS, INC.  
Corporate Intellectual Property - X 100B  
P.O. Box 8097  
Emeryville, CA 94662-8097

6. Total number of applications and patents involved  1

7. Total fee (37 CFR 3.41)..... \$40.00

- Enclosed
- Authorized to be charged to deposit account.

8. Deposit account number: 03-1664

(Attach duplicate copy of this page if paying by deposit account)

DO NOT USE THIS SPACE

9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Helen Lee, Reg. No. 39,270  
Name of Person Signing



Signature

5<sup>th</sup> March 2013

Date

Total number of pages including cover sheet, attachments, and document:  5

Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:  
Mail Stop Assignment Recordation Services, Director of the USPTO, P.O. Box 1450, Alexandria, VA 22313-1450

**ASSIGNMENT**

This Assignment Agreement is entered into by and between NOVARTIS VACCINES AND DIAGNOSTICS, INC, 4560 Horton Street, Emeryville, California 94608, a company organized under the laws of the State of Delaware, and NOVARTIS AG, a company incorporated in Switzerland whose address is Lichtstrasse 35, 4056 Basel, Switzerland.

For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, NOVARTIS VACCINES AND DIAGNOSTICS, INC does hereby sell, assign and transfer to NOVARTIS AG 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 inventions and discoveries described in the provisional or non-provisional patent application(s) entitled

**IMMUNISATION OF LARGE MAMMALS WITH LOW DOSES OF RNA**  
[Patent Case PAT054240-WO-PCT]

and filed in the United States Patent and Trademark Office on \_\_\_\_\_, 2013 and accorded Application Number \_\_\_\_\_ and/or filed as a PCT International Application on July 6, 2011 and accorded International Patent Application Number PCT/US2011/043096; and/or filed in the United States Patent and Trademark Office on \_\_\_\_\_ and accorded Application Number \_\_\_\_\_;

(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 NOVARTIS VACCINES AND DIAGNOSTICS, INC if this sale, assignment and transfer had not been made.

NOVARTIS VACCINES AND DIAGNOSTICS, INC 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.

NOVARTIS VACCINES AND DIAGNOSTICS, INC 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 Switzerland.

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

Executed this 4<sup>th</sup> day of March, 2013.

NOVARTIS VACCINES AND DIAGNOSTICS, INC.

BY [Signature] L.S.  
Helen Lee, Assistant Secretary

State of California )

County of Alameda )

On March 4, 2013 before me, Nafra M. Bates, Notary Public, personally appeared Helen Lee, who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same in her authorized capacity, and that by her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

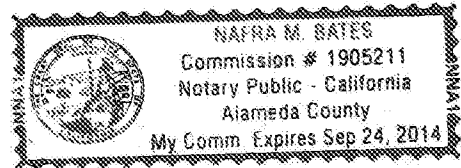
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

[Signature]  
Signature of Notary Public

Print Name: Nafra M. Bates

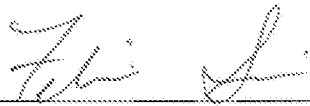
My commission expires:  
\_\_\_\_\_



Executed this 5 day of March, 2013.

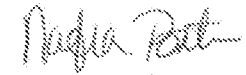
NOVARTIS AG

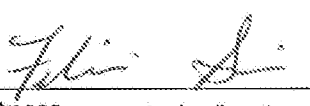
BY  L.S.  
Authorized Representative VERÓNICA DUGG

  
Witness Felicia Soria

Executed this 5<sup>th</sup> day of March, 2013.

NOVARTIS AG

BY  Nafra Bates L.S.  
Authorized Representative

  
Witness Felicia Soria