PATENT ASSIGNMENT

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
MARIAGRAZIA PIZZA	09/07/2010
MARIA SCARSELLI	09/01/2010
MARZIA MONICA GIULIANI	09/01/2010
MARIA ARICO	09/01/2010
RINO RAPPUOLI	08/31/2010

RECEIVING PARTY DATA

Name:	NOVARTIS VACCINES AND DIAGNOSTICS SRL
Street Address:	Via Fiorentina 1
City:	Siena
State/Country:	ITALY
Postal Code:	I-53100

PROPERTY NUMBERS Total: 2

Property Type	Number
Application Number:	61066711
Application Number:	12918729

CORRESPONDENCE DATA

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PATENT

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REEL: 024985 FRAME: 0645

NAME OF SUBMITTER: Kara Shure Total Attachments: 4 source=ASSG Cover Sheet - inventors to NVD SRL#page1.tif source=Assignment inventors to NVD SRL#page1.tif source=Assignment inventors to NVD SRL#page2.tif source=Assignment inventors to NVD SRL#page3.tif

PATENT REEL: 024985 FRAME: 0646 (joint) Patent Case 52506

ASSIGNMENT

For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, we (1) Mariagrazia Pizza, (2) Maria Scarselli, (3) Marzia Monica Giuliani, (4) Maria Aricò and (5) Rino Rappuoli do hereby sell, assign and transfer to **Novartis Vaccines and Diagnostics S.R.L.**, with a place of business at Via Fiorentina 1, I-53100, Siena, Italy, (hereinafter referred to as the "**ASSIGNEE**") and its successors, assigns and legal representatives, all of my right, title and interest for all countries of the world in and to (1) all of our inventions and discoveries described in the patent application(s) titled

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and filed in the United States Patent and Trademark Office on February 20, 20ng and accorded Application 12/918,729 * and/or filed in the RO/IB on February 20, 2009 and accorded International Number Patent Application Number PCT/IB2009/005038*, (2) the patent application(s) identified in (1), (3) all national stages of any international patent application identified in (1), (4) all other patent applications in all countries and regions claiming the priority of the provisional or non-provisional patent application filed in the United States Patent and Trademark Office on February 21, 2008 and accorded Application Number 61/066,711 (5) for all patent applications, all rights of priority based upon the United States patent application identified in (4) in all countries and regions under the Paris Convention for the Protection of Industrial Property, 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 identified in (4) is a provisional patent application, under 35 USC 119(e) (including the right to file patent applications on said inventions and discoveries in the names of ASSIGNEE or their designees or in our names, at their election and in accordance with applicable law in all countries and regions), (6) all continuations and divisions of any United States patent application or international patent application designating the United States identified in (1), any national stages of any international application identified in (1) and any patent applications within the scope of (4) (including further continuations and divisions such as, but not limited to, continuations of continuations and continuations of divisions), ((2)-(4) and (6) hereinafter referred to collectively as "patent applications"), (7) all patents that are granted on any of said patent applications, (8) all registrations and confirmations of, and importation certificates based upon, one or more of said patents and applications for such registrations, confirmations and importation certificates and (9) all reissues, renewals and extensions of said patents, 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 and their successors, assigns and legal representatives to the full ends of the terms for which said patents, 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 us if this sale, assignment and transfer had not been made.

*We hereby authorize **ASSIGNEE** and their representatives to insert in this Assignment the filing date(s) and Application Number(s) of said patent application(s) when notified thereof.

And we hereby covenant and agree that we will, at any time, (i) upon the request, but at the expense, of ASSIGNEE or their successors, assigns or legal representatives execute and deliver all documents that may be necessary or desirable to perfect the title to the foregoing inventions and discoveries, patent applications, patents, registrations, confirmations, importation certificates, reissues, renewals, extensions, reexamination certificates, supplementary protection certificates and applications within the scope of (8) and (9) in ASSIGNEE or their successors, assigns or legal representatives, 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 or their successors, assigns or legal representatives execute all additional patent applications within the scope of (3), (4) and (6) and all applications within the scope of (8) or (9) and (iii) make all rightful oaths and declaration ATPENATIONAL ASSIGNATIONAL ASSIGNATIONAL

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acts requisite for procuring the same or for aiding therein, without further compensation, but at the expense of **ASSIGNEE** or their successors, assigns or legal representatives.

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

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Executed this 140 day of ECTON	2010
Mariagrazia Pizza	L.S.
ACKNOWLEDGEMENT	
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Executed this day of	, 20 <u>10</u>
COLONO COCACU.' Maria Scarselli	L.S.
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PATENT REEL: 024985 FRAME: 0648

WITNESS

	Page 3
Executed this day of _September 6	, 20 <u>10</u> .
Marzia Monica Giuliani	
ACKNOWLEDGEMENT	
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