PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:		NEW ASSIGNMENT				
NATURE OF CONVEY	NATURE OF CONVEYANCE: ASSIGNMENT					
CONVEYING PARTY DATA						
			Execution Date			
NOVARTIS VACCINES & DIAGNOSTICS SRL 10/19/2009						
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						
		13384				
CORRESPONDENCE DATA						
Fax Number: (415)268-7522						
Phone: (415) 268-7000						
Email: Iyadao@mofo.com Correspondence will be sent via US Mail when the email attempt is unsuccessful.						
Email:Iyadao@mofo.comCorrespondence will be sent via US Mail when the email attempt is unsuccessful.Correspondent Name:MORRISON & FOERSTER LLP						
Address Line 1: 425 MARKET ST. Address Line 4: SAN FRANCISCO, CALIFORNIA 94105						
Address Line 4: SAN FRANCISCO, CALIFORNIA 94105						
ATTORNEY DOCKET NUMBER:			529552004200			
NAME OF SUBMITTER:		OTIS B. LITTLEFIELD				
Signature:			/Otis Littlefield/			
Date:		12/11/2013				
Total Attachments: 1 source=Assignment3_61226219_Corp#page1.tif						

ASSIGNMENT JOINT

THIS ASSIGNMENT, by Novartis Vaccines & Diagnostics Srl., an Italian corporation (hereinafter "assignor"), is the sole and exclusive owner, by assignment, of United States Patent Application No. 61/226,219 and filed on July 16, 2009, entitled "DETOXIFIED ESCHERICHIA COLI IMMUNOGENS," and the inventions described therein; and

WHEREAS, Novartis AG, a corporation of Switzerland (hereinafter "assignee"), is desirous of acquiring the right, title and interest in, to and under said Patent application and the inventions covered thereby:

NOW, THEREFORE, for good and sufficient consideration, the receipt of which is hereby acknowledged, said assignors have sold, assigned, transferred and set over, and by these presents does sell, assign, transfer and set over, unto said assignee, its successors, legal representatives and assigns, the entire right, title and interest in and to the abovementioned inventions, provisional patent application and application for Letters Patent, and any and all Letters Patent or Patents in the United States of America and all foreign countries which may be granted therefor and thereon, and in and to any and all conversions, divisions, continuations and continuations-in-part of said application, or reissues or extensions of said Letters Patent or Patents, and all rights under the International Convention for the Protection of Industrial Property, the same to be held and enjoyed by said assignee, for its own use and the use of its successors, legal representatives and assigns, to the full end of the term or terms for which Letters Patent or Patents may be granted, as fully and entirely as the same would have been held and enjoyed by the assignors, had this sale and assignment not been made.

AND for the same consideration, said assignors hereby covenant and agree to and with said assignee its successors, legal representatives and assigns, that, at the time of execution and delivery of these presents, said assignors are the sole and lawful owners of the entire right, title and interest in and to said inventions and the provisional patent application abovementioned, and that the same are unencumbered and that said assignors have good and full right and lawful authority to sell and convey the same in the manner herein set forth.

AND for the same consideration, said assignors hereby covenant and agree to and with said assignee, its successors, legal representatives and assigns, that said assignors will, whenever counsel of said assignee, or the counsel of its successors, legal representatives and assigns, shall advise that any proceeding in connection with said inventions. provisional patent application, or said application for Letters Patent, or any proceeding in connection with Letters Patent for said inventions in any country, including interference proceedings, is lawful and desirable, or that any division, continuation or continuation-in-part of any application for Letters Patent or any reissue or extension of any Letters Patent, to be obtained thereon, is lawful and desirable, sign all papers and documents, take all lawful oaths, and do all acts necessary or required to be done for the procurement, maintenance, enforcement and defense of Letters Patent for said inventions, without charge to said assignee, its successors, legal representatives and assigns, but at the cost and expense of said assignee, its successors, legal representatives and assigns, but at the cost and expense of said assignee, its successors, legal representatives and assigns, but at the cost and expense of said assignee, its successors, legal representatives and assigns.

AND said assignors hereby request the Commissioner of Patents to issue said Letters Patent of the United States to said assignee as the assignee of said inventions and the Letters Patent to be issued thereon for the sole use of said assignee, its successors, legal representatives and assigns.

Name: Richard S. Pitman

Title: Authorized Signatory Company: Novartis Vaccines & Diagnostics Srl.

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Name: Isabelle Frouin Title: Autorized Signatory Company: Novartis AG

Marta Palla Title: Autorized Signatory Company: Novartis AG

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