

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT3930518

<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 AG	06/15/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	GLAXOSMITHKLINE BIOLOGICALS SA
<b>Street Address:</b>	RUE DE L'INSTITUT 89
<b>City:</b>	RIXENSART
<b>State/Country:</b>	BELGIUM
<b>Postal Code:</b>	1330
<b>PROPERTY NUMBERS Total: 2</b>	
<b>Property Type</b>	<b>Number</b>
Patent Number:	7666436
Patent Number:	7427404
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(610)270-6812
<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>	
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<b>ATTORNEY DOCKET NUMBER:</b>	VN51078
<b>NAME OF SUBMITTER:</b>	CARLY MORROW
<b>SIGNATURE:</b>	/Carly Morrow/
<b>DATE SIGNED:</b>	06/22/2016
<b>Total Attachments: 1</b>	
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## CONFIRMATORY ASSIGNMENT

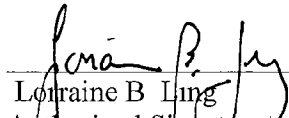
WE, **NOVARTIS AG** a company limited by shares duly incorporated in Switzerland and whose registered office is at Lichtstrasse 35, 4056 Basel, Switzerland do hereby declare that we are the sole owner of the following patents/ patent applications entitled "Pertussis Toxin Mutants, Bordetella Strains Capable of Producing Such Mutants and Their Use in the Development of Antipertussis Vaccines".

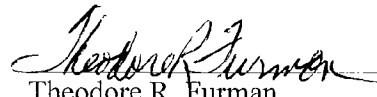
Country	Application Date	Application Number	Grant Date	Patent Number
United States	02-May-95	08/431673	23-Feb-10	7666436
United States	17-Jun-94	08/261691	23-Sep-08	7427404

And in accordance with the Intellectual Property Assignment Agreement dated 2 March 2015 between **NOVARTIS AG** and **GLAXOSMITHKLINE BIOLOGICALS SA**, for good and valuable consideration, the receipt of which is hereby acknowledged, we **NOVARTIS AG** have assigned the entire right, title and interest and from which priority may be claimed from one or more applications, or any division, continuation and continuation-in-part of said application to in and to said patent application and all countries in which this/ these application(s) are filed to **GLAXOSMITHKLINE BIOLOGICALS SA** of Rue de l'Institut 89, 1330 Rixensart, Belgium

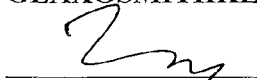
Dated this 15 day of June 2016

Signed for and on behalf of  
**NOVARTIS AG**

  
Lorraine B. Ling  
Authorized Signatory on behalf of  
NOVARTIS AG

  
Theodore R. Furman  
Authorized Signatory on behalf of  
NOVARTIS AG

Signed for and on behalf of  
**GLAXOSMITHKLINE BIOLOGICALS SA**

  
William R. Majarian  
Authorized Official on behalf of  
GLAXOSMITHKLINE BIOLOGICALS SA