507072944 01/13/2022

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT7119780

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
ANDREW GEALL	03/12/2013
KATRIN RAMSAUER	03/21/2013
GILLIS OTTEN	03/12/2013
CHRISTIAN MANDL	03/11/2013

RECEIVING PARTY DATA

Name:	NOVARTIS VACCINES AND DIAGNOSTICS, INC.	
Street Address:	4560 HORTON STREET	
City:	EMERYVILLE	
State/Country:	CALIFORNIA	
Postal Code:	94608-2916	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	17511762

CORRESPONDENCE DATA

Fax Number:

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.

Email: us cipkop@gsk.com

Correspondent Name: GLAXOSMITHKLINE GLOBAL PATENTS UP4110

Address Line 1: 1250 SOUTH COLLEGEVILLE ROAD
Address Line 4: COLLEGEVILLE, PENNSYLVANIA 19426

ATTORNEY DOCKET NUMBER:	VN54242C3
NAME OF SUBMITTER:	ABIGAIL HEDLEY
SIGNATURE:	/Abigail Hedley/
DATE SIGNED:	01/13/2022

Total Attachments: 11

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PATENT 507072944 REEL: 058644 FRAME: 0604

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PATENT REEL: 058644 FRAME: 0605

PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

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CONVEYING PARTY DATA

Name	Execution Date
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Street Address:	4560 HORTON STREET
City:	EMERYVILLE
State/Country:	CALIFORNIA
Postal Code:	94608-2916

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13808085

CORRESPONDENCE DATA

Fax Number: 5106553542

Correspondence will be sent via US Mail when the fax attempt is unsuccessful.

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: PAT054242-US-PCT

NAME OF SUBMITTER: Felicia Soria

Total Attachments: 9

502292983

PATENT

REEL: 030119 FRAME: 0437 PATENT

REEL: 058644 FRAME: 0606

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PATENT REEL: 030119 FRAME: 0438 PATENT

REEL: 058644 FRAME: 0607

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(Rev. 07/05) PATENTS	ONLY	U.S. Patent and Trademark Office
OMB No. 0651-0027 (exp. 6/30/2008)		Atty Docket No.: PAT054242-WO-PCT
To the Director of Patents and Trademarks: Please re	ecord the attached origin	
Name of conveying party(ies):	2 Name and address	of receiving party/iee)
	Name:	or receiving party(les)
ANDREW GEALL	84 8 5 .	
KATRIN RAMSAUER		s and Diagnostics, Inc.
GILLIS OTTEN	4560 Horton Stre Emeryville, Califo	
CHRISTIAN MANDL	94608-2916	a na
Additional name(s) of conveying party(les) attached? Yes No No		
5. Nature of conveyance:		
☐ Assignment ☐ Merger		
Security Agreement Change of Name	***	
☐ Joint Research Agreement ☐ Other	☐ Other	
Government Interest Assignment		
Executive Order 9424, Confirmatory License	Additional name(s)	& address(es) attached? ☐ Yes ☒ No
Execution Date(s): 03/12/2013, 03/21/2013, 03/12/2013,	Province	
03/11/2013		
Application number(s) or patent number(s):	and a second second second	Wantian iz
If this document is being filed together with a new application, the A. Patent Application No.(s)	execution date of the applemental B. Patent No.(s)	uncanon is:
7.6 · dionerapposition racial	a. recent no./s/	
PCT/US2011/043104 (now 13/808,085)		
Additional number(s) a	ı ıttached	
Name and address of party to whom correspondence		ations and patents involved 1
concerning document should be mailed:	о, токанивноегогарряс	and paterns myonyed [1]
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NOVARTIS VACCINES AND DIAGNOSTICS, INC.	☐ Enclosed	
Corporate Intellectual Property – X 100B P.O. Box 8097	Authorized to b	e charged to deposit account.
Emeryville, CA 94662-8097		
	8. Deposit account nu	mber: 03-1664
	(Attach duplicate co	by 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 Date		
Name of Person Signing Signature Date		
Total number of pages including cov	er sheet, attachments, and o	document: 9

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 Andrew Geall, a citizen of Great Britain, Katrin Ramsauer, a citizen of Austria, Gillis Otten, a citizen of the United States of America, and Christian Mandl, a citizen of Austria (hereinafter "Inventor(s)"), and NOVARTIS VACCINES AND DIAGNOSTICS, INC., 4560 Horton Street, Emeryville, California 94608, a company organized under the laws of the State 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

DELIVERY OF RNA TO TRIGGER MULTIPLE IMMUNE PATHWAYS[Patent Case PAT054242-WO-PCT]

and filed in the United States Patent and Tradem	ark Office on	, 2013 and
accorded Application Number		International Application
on July 6, 2011 and accorded International Pater	nt Application Number	PCT/US2011/043104;
and/or filed in the United States Patent and Trad-	emark 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 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

1

PATENT REEL: 058644 FRAME: 0609 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 the State of Delaware.

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

Executed this	12 day of	Narch	, 2013
	AN46		L.S
Andrew Geall Witness			
Executed this	day of		_, 2013
Katrin Ramsaue	r		L.S
Witness			

Executed this Way of May of May of	_, 2013. L.S.
Gillis Otten Witness	E.O.
Executed this day of	_ , 2013. L.S.
Executed this day of	_, 2013.
NOVARTIS VACCINES AND DIAGNOS	TICS, INC.
BY	L.S.
Witness	

ASSIGNMENT

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	and/or filed as a PCT Interna	
on July 6, 2011 and accorded International Pater	nt Application Number <u>PCT/U</u>	<u> S2011/043104;</u>
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accorded Application Number;		

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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);
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- (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.

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Executed this day of	, 2013.
	L.S.
Andrew Geall	
Witness	
Executed this <u>QS</u> day of <u>NAVECA</u>	, 2013.
Valxie Ramsany	L.S.
Katrin Ramsauer	
Mad Mal	
Witness	

Executed this	day of	, 2013.
		L.S.
Gillis Otten		
Witness		
Executed this	day of	, 2013.
		L.S.
Christian Mandl		
Witness		
	18_ day of _ <i>March</i> _	
NOVARTIS VAC	CCINES AND DIAGNO	STICS, INC.
BY		L.S.
Witness		
Witness	Falleria Soria	v.