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PATENT ASSIGNMENT

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SUBMISSION TYPE:		NEW ASSIGNMENT				
NATURE OF CONVEYANCE:		ASSIGNMENT				
CONVEYING PARTY	Y DATA		JI			
Novartis Vaccines and Diagnostics Inc.			Name	Execution Date		
Novartis Vaccines a	nd Diagnostics Inc	o.		09/01/2008		
RECEIVING PARTY	DATA					
Name:	Novartis AG					
Street Address:	Lichtstrasse 35					
City:	Basel					
State/Country:	SWITZERLAND					
Postal Code:	4056	4056				
Property Type		Number				
Property Type		Number				
Application Number: 134		13471	1111			
	E DATA					
CORRESPONDENC						
Fax Number:	l he cent via US M	lail whe	on the fav attempt is unsuccessful			
Fax Number:			en the fax attempt is unsuccessful. bs@novartis.com			
Fax Number: Correspondence will	pip_inbc	x.phchl	bs@novartis.com			
Fax Number: Correspondence will Email: Correspondent Name Address Line 1:	pip_inbo e: Nicholas 220 Mas	ox.phchl s J. Lan ssachus	bs@novartis.com ndry setts Ave.			
Fax Number: Correspondence will Email: Correspondent Name	pip_inbo e: Nicholas 220 Mas	ox.phchl s J. Lan ssachus	bs@novartis.com ndry			
Fax Number: Correspondence will Email: Correspondent Name Address Line 1: Address Line 4:	pip_inbo e: Nicholas 220 Mas Cambrio	ox.phchl s J. Lan ssachus lge, MA	bs@novartis.com ndry setts Ave.			
Fax Number: Correspondence will Email: Correspondent Name Address Line 1: Address Line 4: ATTORNEY DOCKE	pip_inbo e: Nicholas 220 Mas Cambrio T NUMBER:	ox.phchl s J. Lan ssachus lge, MA	bs@novartis.com ndry setts Ave. ASSACHUSETTS 02139			
Correspondence with Email: Correspondent Name Address Line 1:	pip_inbo e: Nicholas 220 Mas Cambrio T NUMBER:	ox.phchl s J. Lan ssachus lge, MA	bs@novartis.com idry setts Ave. ASSACHUSETTS 02139 PAT051684-US-CNT			

Total Attachments: 4

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REEL: 030929 FRAME: 0863

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(joint)

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ASSIGNMENT

For good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, we

Novartis Vaccines and Diagnostics Inc. P.O. Box 8097 Emeryville, CA 94608 US

do hereby sell, assign and transfer to **Novartis AG**, a company organized under the laws of the Swiss Confederation, of Lichtstrasse 35, 4056 Basel, Switzerland, and its successors, assigns and legal representatives, all our right, title and interest for all countries of the world (Novartis AG hereinafter referred to as the "ASSIGNEE") in and to (1) all of our inventions and discoveries described in the patent application(s) entitled

PYRIMIDINE DERIVATIVES USED AS PI-3 KINASE INHIBITORS

and filed* in the United States Patent and Trademark Office on _ and/or filed in the RO/US on January 22, 2007, and accorded Application Number _____ International Patent Application Number PCT/US2007/001708, (2) said patent application(s), (3) all national stages of said international patent application, (4) all other patent applications in all countries and regions claiming the priority of the provisional patent application filed in the United States Patent and Trademark Office on January 20, 2006 and accorded Application Number 60/760,789, (5) all continuations and divisions of all of said patent applications (including further continuations and divisions such as, but not limited to, continuations of continuations and continuations of divisions), ((2)-(5) hereinafter referred to collectively as "patent applications"), (6) all patents that are granted on any of said patent applications. (7) all registrations and confirmations of, and importation certificates based on, one or more of said patents and (8) all reissues, renewals and extensions of said patents, reexamination certificates issued for said patents and supplementary protection certificates based on said patents (including the right to file patent applications on said inventions and discoveries in the names of ASSIGNEE, their designees or in any or all of our names, at their election and in accordance with applicable law in all countries and regions and all rights of priority in all countries and regions for all of said patent applications under the International 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), the same to be held and enjoyed by said ASSIGNEE, their successors, assigns and legal representatives, to the full ends of the terms for which all patents therefor 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.

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

And we hereby covenant and agree that we will, at any time, upon the request and 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, patent applications, patents, registrations, confirmations, importation certificates, reissues, renewals, extensions, reexamination certificates and supplementary protection certificates in ASSIGNEE, their successors, assigns or other 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, that we will, at any time, upon the request and at the expense of ASSIGNEE, execute all additional patent applications, applications for registration and/or confirmation of one or more of said patents, applications for certificates of importation based on one or more of said patents, applications for reissues, renewals and extensions of one or more of said patents and supplemental protection certificates based upon one or more of said patents, and that we will 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, the successors, assigns or other legal representatives.

Executed this O1 day of September, 2008.

Novartis Vaccines and Diagnostics Inc.

Georg VON SPRECHER

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Attestation

I, the undersigned notary public in Basel, Switzerland, Dr. Matthias Staehelin, certify herewith that the signature attached heretofore is the genuine signature of **Mr. Georg von Sprecher**, born on the 4th of November 1952 (nineteen hundred fifty-two), citizen of Luzein/GR, Switzerland, and Parpan/GR, Switzerland, with business address in Basel, Switzerland, acting for **Novartis Vaccines and Diagnostics, Inc.**, in Cambridge, Massachusetts, United States of America, as proxy holder, with single signature.

The authenticity of the signature was established by means of comparison.

BASEL, Switzerland, this 11th (eleventh) day of September 2008 (twothousandandeight)

1 1 Hallow, Moto

Dr. M. Staehelin...

Leg.Prot.Nr. 1853/2008

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FOR CERTIFIED COPY

I, the undersigned Civil Law Notary, Dr. Matthias Staehelin, hereby certify that the document attached heretofore is a true and authentic photocopy of the original.

BASEL, Switzerland, this 15th (fifteenth) day of September 2008 (twothousandandeight)

M. Macher, Noto

Dr. M. Staehenn Notar

Leg. Prot. 1275/2008

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RECORDED: 08/02/2013