12/14/2017 504688396

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4735118

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
MEREDITH ANN MCGOWAN	05/10/2016
HUA ZHOU	05/10/2017
JASON D. KATZ	05/10/2016
JOEY L. METHOT	05/10/2016
LIHU YANG	10/18/2016
KATHRYN ANN LIPFORD	05/25/2016

RECEIVING PARTY DATA

Name:	MERCK SHARP & DOHME CORP.
Street Address:	126 EAST LINCOLN AVENUE
Internal Address:	RY6-2011A
City:	RAHWAY
State/Country:	NEW JERSEY
Postal Code:	07065

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15736510

CORRESPONDENCE DATA

Fax Number: (732)594-4720

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.

Phone: 732-594-4488 Email: us_efs@merck.com

Correspondent Name: MERCK P O BOX 2000 Address Line 1:

Address Line 4: RAHWAY, NEW JERSEY 07065-0907

ATTORNEY DOCKET NUMBER:	24139-US-PCT
NAME OF SUBMITTER:	MICHELLE S. SISKO
SIGNATURE:	/Michelle A. Sisko/
DATE SIGNED:	12/14/2017

PATENT REEL: 044880 FRAME: 0010

504688396

Total Attachments: 21 source=24139-ASSIGN-MSD#page1.tif source=24139-ASSIGN-MSD#page2.tif source=24139-ASSIGN-MSD#page3.tif source=24139-ASSIGN-MSD#page4.tif source=24139-ASSIGN-MSD#page5.tif source=24139-ASSIGN-MSD#page6.tif source=24139-ASSIGN-MSD#page7.tif source=24139-ASSIGN-MSD#page8.tif source=24139-ASSIGN-MSD#page9.tif source=24139-ASSIGN-MSD#page10.tif source=24139-ASSIGN-MSD#page11.tif source=24139-ASSIGN-MSD#page12.tif source=24139-ASSIGN-MSD#page13.tif source=24139-ASSIGN-MSD#page14.tif source=24139-ASSIGN-MSD#page15.tif source=24139-ASSIGN-MSD#page16.tif source=24139-ASSIGN-MSD#page17.tif source=24139-ASSIGN-MSD#page18.tif source=24139-ASSIGN-MSD#page19.tif source=24139-ASSIGN-MSD#page20.tif source=24139-ASSIGN-MSD#page21.tif

PATENT REEL: 044880 FRAME: 0011

WORLDWIDE ASSIGNMENT

WHEREAS, IWE,

- (1) Meredith Ann McGowan, located at Boston, MA,
- (2) Hua Zhou, located at Acton, MA,
- (3) Jason D. Katz, located at Newton Highlands, MA,
- (4) Lihu Yang, located at Edison, NJ,
- (5) Joey L. Methot, located at Westwood, MA,
- (6) Kathryn Ann Lipford, located at Boston, MA,

(hereinafter ASSIGNOR(S)), together with Shimin Xu located at Beijing, China, Ning Fu located at Beijing, China, Guoquan Xu located at Beijing, China, Deqian Bian located at Beijing, China, Jianmin Fu located at Beijing, China, Yabin Li located at Beijing China, and Kin Chiu Fong located at Shanghai, China, are the inventors of the invention described in an application for Patents having the Attorney Docket Number indicated above and the following Title of the Invention:

PURINE INHIBITORS OF HUMAN PHOSPHATIDYLINOSITOL 3-KINASE DELTA

and/or in the following application(s):

U.S. Provisional Application No		filed on	أخصيني والمستحدد
U.S. Application No.		filing date of	; and
PCT International Application No.	PCT/CN2015/082673	having a filing date of	06/29/2015

WHEREAS I/WE covenant that the rights and property herein conveyed are free and clear of any encumbrance, and that I/we have the full right to convey the same as herein expressed.

WHEREAS, Merck Sharp & Dohme Corp., a corporation organized under the laws of the State of New Jersey, having an office at 126 East Lincoln Avenue, Rahway, New Jersey 07065, and its successors, assigns and legal representatives (hereinafter ASSIGNEE), is desirous of obtaining the entire right, title and interest in, to and under the invention disclosed in said application or applications;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, I/we, said ASSIGNOR(S), do each hereby sell, assign and transfer or confirm the grant and assignment to said ASSIGNEE my/our entire right, title and interest in all countries of the world in and to my/our invention described in said application for Patents, in and to the right to file patent applications in the name of ASSIGNEE, its designee, or in any or all of our names, at its election, on the aforesaid invention in all countries of the world, together with all rights of priority in the aforesaid countries deriving from the above-identified application for Patents under the International Convention for the Protection of Industrial Property, under the Inter-American Convention relating to Inventions, Patents, Designs and Industrial Models and under any other international arrangement relating to patents or intellectual property, in and to any and all Letters Patent that are granted from the aforesaid application for Patents, in and to any applications claiming priority benefits to a provisional patent application or other applications filed on said invention, and in and to any continuations, divisions, reexaminations, reissues, renewals and extensions thereof of any of said Letters Patent, the same to be held and enjoyed by said ASSIGNEE, to the full ends of the terms for which all Letters Patent therefore may be granted, as fully and entirely as the same would have been held and enjoyed by us if this assignment and sale had not been made.

AND I/WE HEREBY covenant and agree that we will at any time, upon the request and at the expense of ASSIGNEE, without further compensation or charge to said ASSIGNEE, execute and deliver any and all documents that may be necessary or desirable to perfect the title to the foregoing invention, patent applications, and Letters Patent and continuations, divisions, reexaminations, reissues, renewals and extensions thereof in the name of ASSIGNEE, including the execution and procurement of any and all further documents evidencing this assignment and sale as may be necessary or desirable for recording the same in the Patent Office of any country concerned, and will make all rightful oaths and declarations and do all lawful acts requisite for procuring the same or for aiding therein.

I/WE HEREBY authorize ASSIGNEE to insert in this instrument the Application Number(s) and the filing date(s) of said application for Patents when officially notified thereof.

This document may be executed in any number of counterparts, each of which so executed shall be deemed to be an original, but all such components shall together constitute but one and the same document.

Executed this 10 day of May	, <u>2016</u> .
More deth Ann McGowan	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts)
) s.s.;
County of Suffolk)
On this 10 day of May	, 2016, before me, the undersigned notary public, personally appeared
Meredeth Ann McGowan proved to me th	rough satisfactory evidence of identification, which was
Merck ID to be the	e person whose name is signed on the preceding document, and
acknowledged to me that he/she signed i	t voluntarily for its stated purpose.
JEANNE F. CALLINAN Notary Public COMMONWEAUTH OF MASSACHUSETTS My Commission Expires September 23, 2022	Notary Public: Janue + Calfinan My Commission Expires: 9/23/22

Executed this 60 day of 1, 2016.
Hua Zhou
ACKNOWLEDGEMENT
Commonwealth of Massachusetts) } s.s.:
County of Suffolk)
On this 10 day of 144, 2016, before me, the undersigned notary public, personally appeared Hua Zhou proved to me through satisfactory evidence of identification, which was 160 me that he/she signed it
voluntarily for its stated purpose.
JEANNE F. CALLINAN Notary Public: COMMONWEALTH OF MASSACHUSETTS My Commission Expires September 28, 2022 Notary Public: My Commission Expires September 28, 2022

Executed this 10 day of May	, <u>2016</u>
Jasoyi D. Katz	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts	
County of <u>Suffolk</u>)	S.S.:
On this <u>10</u> day of <u>Hay</u>	, 2016, before me, the undersigned notary public, personally appeared
Jason D. Katz proved to me through satisfac	tory evidence of identification, which was <u>Merck ID</u> ,
to be the person whose name is signed on t	he preceding document, and acknowledged to me that he/she signed it
voluntarily for its stated purpose.	
	Notary Public: Lande & Callinan
JEANNE F. CALLINAN NOISITY PUBLIC COMMONWEALTH OF MASSACHUSETTS	Notary Public: Humble + Collings My Commission Expires: 9-23-23
My Commission Expires September 23, 2022	

Executed this day of	, <u>2016</u>
Lihu Yang	
ACKNOWLEDGEMENT	
State of New Jersey	Ť
County of <u>Union</u>) s.s.:)
On this day of	, 2016, before me, the undersigned notary public, personally appeared
	ctory evidence of identification, which was, to
be the person whose name is signed on voluntarily for its stated purpose.	the preceding document, and acknowledged to me that he/she signed it
	Notary Public:
	My Commission Expires:

Executed this 10 day of 1 20/6, 2016
Jely y. Methot
ACKNOWLEDGEMENT
Commonwealth of Massachusetts)
) s.s.:
On this 10 day of 14, 2016, before me, the undersigned notary public, personally appeared
Joey L. Methot proved to me through satisfactory evidence of identification, which was
Merck ID , to be the person whose name is signed on the preceding document, and
acknowledged to me that he/she signed it voluntarily for its stated purpose.
JEANNE F. CALLINAN Notary Public: Lauré Fallinan Notary Public: Lauré Fallinan My Commission Expires September 23, 2022 Notary Public: Lauré Fallinan My Commission Expires: 9/03/22

Executed this day of	, 2016.
Kathryn Ann Lipford	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts)
) s.s.;
County of <u>Suffolk</u>)
On this day of	, 2016, before me, the undersigned notary public, personally appeared
	ough satisfactory evidence of identification, which was
, to be	the person whose name is signed on the preceding document, and
acknowledged to me that he/she signed	d it voluntarily for its stated purpose.
	Notary Public:
	My Commission Expires:

WORLDWIDE ASSIGNMENT

WHEREAS, I/WE,

- (1) Meredith Ann McGowan, located at Boston, MA,
- (2) Hua Zhou, located at Acton, MA,
- (3) Jason D. Katz, located at Newton Highlands, MA,
- (4) Lihu Yang, located at Edison, NJ,
- (5) Joey L. Methot, located at Westwood, MA,
- (6) Kathryn Ann Lipford, located at Boston, MA,

(hereinafter ASSIGNOR(S)), together with Shimin Xu located at Beijing, China, Ning Fu located at Beijing, China, Guoquan Xu located at Beijing, China, Deqian Bian located at Beijing, China, Jianmin Fu located at Beijing, China, Yabin Li located at Beijing China, and Kin Chiu Fong located at Shanghai, China, are the inventors of the invention described in an application for Patents having the Attorney Docket Number indicated above and the following Title of the Invention:

PURINE INHIBITORS OF HUMAN PHOSPHATIDYLINOSITOL 3-KINASE DELTA

and/or in the following application(s):

U.S. Provisional Application No	filed on	
U.S. Application No.	having a filing date of	
PCT International Application No.	PCT/CN2015/082673 having a filing date of	06/29/2015

WHEREAS I/WE covenant that the rights and property herein conveyed are free and clear of any encumbrance, and that I/we have the full right to convey the same as herein expressed.

WHEREAS, Merck Sharp & Dohme Corp., a corporation organized under the laws of the State of New Jersey, having an office at 126 East Lincoln Avenue, Rahway, New Jersey 07065, and its successors, assigns and legal representatives (hereinafter ASSIGNEE), is desirous of obtaining the entire right, title and interest in, to and under the invention disclosed in said application or applications;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, I/we, said ASSIGNOR(S), do each hereby sell, assign and transfer or confirm the grant and assignment to said ASSIGNEE my/our entire right, title and interest in all countries of the world in and to my/our invention described in said application for Patents, in and to the right to file patent applications in the name of ASSIGNEE, its designee, or in any or all of our names, at its election, on the aforesaid invention in all countries of the world, together with all rights of priority in the aforesaid countries deriving from the above-identified application for Patents under the International Convention for the Protection of Industrial Property, under the Inter-American Convention relating to Inventions, Patents, Designs and Industrial Models and under any other international arrangement relating to patents or intellectual property, in and to any and all Letters Patent that are granted from the aforesaid application for Patents, in and to any applications claiming priority benefits to a provisional patent application or other applications filed on said invention, and in and to any continuations, divisions, reexaminations, reissues, renewals and extensions thereof of any of said Letters Patent, the same to be held and enjoyed by said ASSIGNEE, to the full ends of the terms for which all Letters Patent therefore may be granted, as fully and entirely as the same would have been held and enjoyed by us if this assignment and sale had not been made.

AND I/WE HEREBY covenant and agree that we will at any time, upon the request and at the expense of ASSIGNEE, without further compensation or charge to said ASSIGNEE, execute and deliver any and all documents that may be necessary or desirable to perfect the title to the foregoing invention, patent applications, and Letters Patent and continuations, divisions, reexaminations, reissues, renewals and extensions thereof in the name of ASSIGNEE, including the execution and procurement of any and all further documents evidencing this assignment and sale as may be necessary or desirable for recording the same in the Patent Office of any country concerned, and will make all rightful oaths and declarations and do all lawful acts requisite for procuring the same or for aiding therein.

IWE HEREBY authorize ASSIGNEE to insert in this instrument the Application Number(s) and the filing date(s) of said application for Patents when officially notified thereof.

This document may be executed in any number of counterparts, each of which so executed shall be deemed to be an original, but all such components shall together constitute but one and the same document.

Executed this day of	, <u>2016</u> .
Meredeth Ann McGowan	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts)
) s.s.:
County of Suffolk)
On this day of	, 2016, before me, the undersigned notary public, personally appeared
Meredeth Ann McGowan proved to me	through satisfactory evidence of identification, which was
, to be	the person whose name is signed on the preceding document, and
acknowledged to me that he/she signe	
	* *
	Notary Public:
	My Commission Expires:

Executed this day of	, 2016.
Hua Zhou	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts)
County of <u>Suffolk</u>) s.s.:)
	, 2016, before me, the undersigned notary public, personally appeared
	ory evidence of identification, which was, to the preceding document, and acknowledged to me that he/she signed it
	Notary Public:
	My Commission Expires:

Executed this day of	, <u>2016</u>
Jason D. Katz	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts)
County of Suffolk) s.s.:)
	, 2016, before me, the undersigned notary public, personally appeared
	tisfactory evidence of identification, which was
	Notary Public: My Commission Expires:

Executed this 18 day of May	, <u>2016</u>
Elfiu Yang	
ACKNOWLEDGEMENT	
State of New Jersey)	
County of <u>Union</u>) s.s.:	
On this 8th day of May 2	2016, before me, the undersigned notary public, personally appeared
Lihu Yang proved to me through satisfactory evid	dence of identification, which was
be the person whose name is signed on the prece	eding document, and acknowledged to me that he/she signed it
voluntarily for its stated purpose.	Nina A. Kuster
	Notary Public: NOTARY PUBLIC OF NEW JERSEY My Commission Expires: My Commission Expires (17/2020)

Executed this day of	, 2016
Joey L. Methot	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts)
) s.s.:
County of <u>Suffolk</u>)
On this day of	, 2016, before me, the undersigned notary public, personally appeared
Joey L. Methot proved to me through s	atisfactory evidence of identification, which was
, to be	the person whose name is signed on the preceding document, and
acknowledged to me that he/she signe	
	
	Notary Public:
	My Commission Expires:

Executed this day of	, <u>2016</u> .
Kathryn Ann Lipford	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts)
) s.s.:
County of Suffolk) .
On this day of	, 2016, before me, the undersigned notary public, personally appeared
	ough satisfactory evidence of identification, which was
	the person whose name is signed on the preceding document, and
acknowledged to me that he/she signe	
	The state of the s
	Notary Public:
	My Commission Expires:

WORLDWIDE ASSIGNMENT

WHEREAS, I/WE,

- (1) Meredith Ann McGowan, located at Boston, MA,
- (2) Hua Zhou, located at Acton, MA,
- (3) Jason D. Katz, located at Newton Highlands, MA,
- (4) Lihu Yang, located at Edison, NJ,
- (5) Joey L. Methot, located at Westwood, MA,
- (6) Kathryn Ann Lipford, located at Boston, MA,

(hereinafter ASSIGNOR(S)), together with Shimin Xu located at Beijing, China, Ning Fu located at Beijing, China, Guoquan Xu located at Beijing, China, Deqian Bian located at Beijing, China, Jianmin Fu located at Beijing, China, Yabin Li located at Beijing China, and Kin Chiu Fong located at Shanghai, China, are the inventors of the invention described in an application for Patents having the Attorney Docket Number indicated above and the following Title of the Invention:

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and/or in the following application(s):

U.S. Provisional Application No	filed on	
U.S. Application No.	having a filing date of	; and
PCT International Application No.	PCT/CN2015/082673 having a filing date of	06/29/2015

WHEREAS I/WE covenant that the rights and property herein conveyed are free and clear of any encumbrance, and that I/we have the full right to convey the same as herein expressed.

WHEREAS, Merck Sharp & Dohme Corp., a corporation organized under the laws of the State of New Jersey, having an office at 126 East Lincoln Avenue, Rahway, New Jersey 07065, and its successors, assigns and legal representatives (hereinafter ASSIGNEE), is desirous of obtaining the entire right, title and interest in, to and under the invention disclosed in said application or applications;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, I/we, said ASSIGNOR(S), do each hereby sell, assign and transfer or confirm the grant and assignment to said ASSIGNEE my/our entire right, title and interest in all countries of the world in and to my/our invention described in said application for Patents, in and to the right to file patent applications in the name of ASSIGNEE, its designee, or in any or all of our names, at its election, on the aforesaid invention in all countries of the world, together with all rights of priority in the aforesaid countries deriving from the above-identified application for Patents under the International Convention for the Protection of Industrial Property, under the Inter-American Convention relating to Inventions, Patents, Designs and Industrial Models and under any other international arrangement relating to patents or intellectual property, in and to any and all Letters Patent that are granted from the aforesaid application for Patents, in and to any applications claiming priority benefits to a provisional patent application or other applications filed on said invention, and in and to any continuations, divisions, reexaminations, reissues, renewals and extensions thereof of any of said Letters Patent, the same to be held and enjoyed by said ASSIGNEE, to the full ends of the terms for which all Letters Patent therefore may be granted, as fully and entirely as the same would have been held and enjoyed by us if this assignment and sale had not been made.

AND I/WE HEREBY covenant and agree that we will at any time, upon the request and at the expense of ASSIGNEE, without further compensation or charge to said ASSIGNEE, execute and deliver any and all documents that may be necessary or desirable to perfect the title to the foregoing invention, patent applications, and Letters Patent and continuations, divisions, reexaminations, reissues, renewals and extensions thereof in the name of ASSIGNEE, including the execution and procurement of any and all further documents evidencing this assignment and sale as may be necessary or desirable for recording the same in the Patent Office of any country concerned, and will make all rightful oaths and declarations and do all lawful acts requisite for procuring the same or for aiding therein.

I/WE HEREBY authorize **ASSIGNEE** to insert in this instrument the Application Number(s) and the filing date(s) of said application for Patents when officially notified thereof.

This document may be executed in any number of counterparts, each of which so executed shall be deemed to be an original, but all such components shall together constitute but one and the same document.

Computer Generated Template "Assignment-Merck Sharp & Dohme. Multiple Assignees Worldwide" (Assignment) Merck Sharp & Dohme Corp. 1

Executed this day of	, <u>2016</u> .
Meredeth Ann McGowan	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts	
County of Suffolk)	S.S.:
Meredeth Ann McGowan proved to me thro	, 2016, before me, the undersigned notary public, personally appeared ugh satisfactory evidence of identification, which was person whose name is signed on the preceding document, and
acknowledged to me that he/she signed it v	
	Notary Public:
	My Commission Expires:

Executed this day of	, <u>2016</u> .
Hua Zhou	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts); } s.s.:
County of Suffolk)
Hua Zhou proved to me through satisfa	, 2016, before me, the undersigned notary public, personally appeared actory evidence of identification, which was, to the preceding document, and acknowledged to me that he/she signed it
	Notary Public:
	My Commission Expires:

Executed this day of	, 2016
Jason D. Katz	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts) } s.s.:
County of <u>Suffolk</u>)
Jason D. Katz proved to me through sat	, 2016, before me, the undersigned notary public, personally appeared tisfactory evidence of identification, which was
voluntarily for its stated purpose.	on the preceding document, and acknowledged to me that he/she signed it
	Notary Public:
	My Commission Expires:

Executed this day of	, <u>2016</u>
Lihu Yang	
ACKNOWLEDGEMENT	
State of New Jersey	
County of <u>Union</u>) s.s.::
Lihu Yang proved to me through satisfact	, 2016, before me, the undersigned notary public, personally appeared fory evidence of identification, which was, to be preceding document, and acknowledged to me that he/she signed it
	Notary Public:
	My Commission Expires:

Executed this day of	, <u>2016</u>
Joey L. Methot	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts)
) s.s.:
County of <u>Suffolk</u>	
On this day of	, 2016, before me, the undersigned notary public, personally appeared
	itisfactory evidence of identification, which was
to be t	the person whose name is signed on the preceding document, and
acknowledged to me that he/she signed	
	Notary Public:
	My Commission Expires:

Executed this 25 day of May	, <u>2016</u> .
Kathryn Arin Lipford Pha S	
ACKNOWLEDGEMENT	
Commonwealth of Massachusetts)
County of <u>Suffolk</u>) s.s.:)
On this 25 day of WCV	
	h satisfactory evidence of identification, which was person whose name is signed on the preceding document, and
acknowledged to me that he/she signed it	
	Notary Public: Occurs Eberhat My Commission Expires: