# 505750662 10/31/2019

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5797475

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

# **CONVEYING PARTY DATA**

Name	Execution Date
ASHOK ARASAPPAN	01/11/2019
IAN M. BELL	12/14/2018
MICHAEL J. BRESLIN	12/14/2018
CHRISTOPHER JAMES BUNGARD	12/14/2018
CHRISTOPHER S. BURGEY	12/14/2018
HARRY R. CHOBANIAN	01/10/2019
JASON M. COX	01/11/2019
ANTHONY T. GINNETTI	12/14/2018
DEODIAL GUY GUIADEEN	01/10/2019
KRISTEN L.G. JONES	01/03/2019
MARK E. LAYTON	01/03/2019
HONG LIU	01/10/2019
JIAN LIU	01/10/2019
JAMES J. PERKINS	01/03/2019
SHAWN J. STACHEL	12/14/2018
LINDA M. SUEN-LAI	12/14/2018
ZHE WU	12/18/2018

# **RECEIVING PARTY DATA**

Name:	MERCK SHARP & DOHME CORP		
Street Address:	126 EAST LINCOLN AVENUE		
Internal Address:	RY86-2011A		
City:	RAHWAY		
State/Country:	NEW JERSEY		
Postal Code:	07065		

# **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	16669598

# **CORRESPONDENCE DATA**

PATENT REEL: 050897 FRAME: 0001

505750662

**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:** 732 594-4000

Email: us\_efs@merck.com
Correspondent Name: MERCK & CO., INC.
Address Line 1: P. O. BOX 2000
Address Line 2: RY86-2011A

Address Line 4: RAHWAY, NEW JERSEY 07065

ATTORNEY DOCKET NUMBER:	24658-US-NP
NAME OF SUBMITTER:	PAMELA SPALDING
SIGNATURE:	/Pamela Spalding/
DATE SIGNED:	10/31/2019

## **Total Attachments: 21**

source=24658USNP-ASSIGN-31OCT2019#page1.tif source=24658USNP-ASSIGN-31OCT2019#page2.tif source=24658USNP-ASSIGN-31OCT2019#page3.tif source=24658USNP-ASSIGN-31OCT2019#page4.tif source=24658USNP-ASSIGN-31OCT2019#page5.tif source=24658USNP-ASSIGN-31OCT2019#page6.tif source=24658USNP-ASSIGN-31OCT2019#page7.tif source=24658USNP-ASSIGN-31OCT2019#page8.tif source=24658USNP-ASSIGN-31OCT2019#page9.tif source=24658USNP-ASSIGN-31OCT2019#page10.tif source=24658USNP-ASSIGN-31OCT2019#page11.tif source=24658USNP-ASSIGN-31OCT2019#page12.tif source=24658USNP-ASSIGN-31OCT2019#page13.tif source=24658USNP-ASSIGN-31OCT2019#page14.tif source=24658USNP-ASSIGN-31OCT2019#page15.tif source=24658USNP-ASSIGN-31OCT2019#page16.tif source=24658USNP-ASSIGN-31OCT2019#page17.tif source=24658USNP-ASSIGN-31OCT2019#page18.tif source=24658USNP-ASSIGN-31OCT2019#page19.tif source=24658USNP-ASSIGN-31OCT2019#page20.tif source=24658USNP-ASSIGN-31OCT2019#page21.tif

> PATENT REEL: 050897 FRAME: 0002

### WORLDWIDE ASSIGNMENT

## WHEREAS, I/WE,

- (1) Ashok Arasappan, located at Bridgewater, NJ
- (2) Ian M. Bell, located at Harleysville, PA
- (3) Michael J. Breslin, located at Drexel Hill, PA
- (4) Christopher James Bungard, located at Lansdale, PA
- (5) Christopher S. Burgey, located at Ambler, PA
- (6) Harry R. Chobanian, located at Aberdeen, NJ
- (7) Jason M. Cox, located at Whitehouse Station, NJ
- (8) Anthony T. Ginnetti, located at Perkasie, PA
- (9) Deodial Guy Guiadeen, located at Chesterfield, NJ

- (10) Kristen L. G. Jones, located at Oreland, PA
- (11) Mark E. Layton, located at Harleysville, PA
- (12) Hong Liu, located at Hillsborough, NJ
- (13) Jian Liu, located at Edison, NJ
- (14) James J. Perkins, located at Churchville, PA
- (15) Shawn J. Stachel, located at Perkasie, PA
- (16) Linda M. Suen-Lai, located at Philadelphia, PA
- (17) Zhe Wu, located at Blue Bell, PA

(hereinafter ASSIGNOR(S)), is/are the inventor(s) of the invention described in an application for Patents having the Attorney Docket Number indicated above and the following Title of the Invention:

### 2-AMINO-N-HETEROARYL-NICOTINAMIDES AS NAV1.8 INHIBITORS

and/or in the following application(s):

U.S. Provisional Application No. <u>62/754,742</u>	filed on 11/2/2018;	
U.S. Application No.	having a filing date of	; and

PCT International Application No. \_\_\_\_\_\_ having a filing date of \_\_\_\_\_\_

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. Single Assignee Worldwide" (Assignment) Merck Sharp & Dohme Corp. 11/04/2010

Worldwide	Angingn	noi
AMORIOWIUS:	149281G1111	133

Ashok Aresappan  ACKNOWLEDGEMENT  State of New Jersey	Executed this
State of New Jersey  County of Union  On this  day of	
County of Union On this day of 20 personally appeared before me Ashok Arasappan to me known, and known by me to be the same person(s) described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.  (Seal)  Notary Public DINA A. KUSTER NOTARY PUBLIC OF NEW JERSEY My Compaission Expires 3/7/2020  Executed this day of Notary Public On this Seal Seal Seal Seal Seal Seal Seal Seal	ACKNOWLEDGEMENT
Notary Public   DINA A. KUSTER   NOTARY Public OF NEW JERSEY   My Composition Expires 8/7/2020	On this day of
Notary Public DINA A. KUSTER NOTARY PUBLIC OF NEW JERSEY My Commission Expires 8772020  Ian M. Bell  ACKNOWLEDGEMENT  Commonwealth of Pennsylvania ) s.s.: County of Mentgemery  On this day of 20, personally appeared before me lan M. Bell to me known, and known by me to be the same person described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.	instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.
Executed this	Notary Public  DINA A. KUSTÉR
Ian M. Bell  ACKNOWLEDGEMENT  Commonwealth of Pennsylvania ) s.s.:  County of Montgomery ) some day of some person described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.	88 . O
County of Montgomery )  On this day of, 20, personally appeared before me lan M. Bell to me known, and known by me to be the same person described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.	
County of Montgomery  On this day of, 20, personally appeared before me lan M. Bell to me known, and known by me to be the same person described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.	ACKNOWLEDGEMENT
acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.	) S.S.:
(Seal)	
Notary Public	

Page 2 of 10
Computer Generated Template "Assignment-Merch Sharp & Cohme, Single Assignee Worldwide" (Assignment) Merck Sharp & Oohme Corp. 11/04/2010

Executed this	day of	, 20
Michael J. Breslin		
ACKNOWLEDGEME	ENT	
Commonwealth of Pe	ennsylvania )	
County of Montgome	ennsylvania ) s.s.: ry )	
Breslin to me known	, and known by me to be t	, 20, personally appeared before me Michael J. the same person(s) described in and who executed the foregoing instrument, same, of his (her) own free will for the purpose set forth.
(Seal)		
		Notary Public
Executed this	day of	, 20
Christopher James	Bungard	
ACKNOWLEDGEME	ENT	
Commonwealth of Pe		
County of Montgomer	) s.s.: )	
James Bungard to m	ne known, and known by r	, 20, personally appeared before me <u>Christopher</u> me to be the same person described in and who executed the foregoing recuted the same, of his (her) own free will for the purpose set forth.
(Seal)		
		Notary Public

Page 3 of 10
Computer Generated Template "Assignment-Merck Sharp & Dohme. Single Assignee Worldwide" (Assignment) Merck Sharp & Dohme Corp. 11/04/2010

Executed this	day of	20
Christopher S. Burgey		
ACKNOWLEDGEMENT		
Commonwealth of Pennsylv	vanía ) ) s.s.:	
County of Montgomery	)	
On this	_ day of nown by me to be the s she) executed the same	, 20 personally appeared before me <u>Christopher</u> ame person(s) described in and who executed the foregoing instrume e, of his (her) own free will for the purpose set forth.
(Seai)		
	•	Notary Public
Executed this WA dr	ny of IGHNAN	
ACKNOWLEDGEMENT		
State of New Jersey	)	
County of Union On this	) s.s.: day of CC)(1	014 . 20 0 personally appeared before me <u>H<b>arry</b> R.</u>
Chobanian to me known, a	nd known by me to be the	he same person described in and who executed the foregoing ed the same, of his (her) own free will for the purpose set forth.
(Seal)		Yna A Kustu
	(	Notary Public OINA A. KUSTER
		NOTARY PUBLIC OF NEW JERSEY My Commission Expires 8/7/2020

Page 4 of 10
Computer Generated Lamplate "Assignment-Merck Sharp 5 Dohme Single Assignee Woodowide" (Assignment) Merck Sharp 8 Dohme Corp. 11/04/2010

Executed this
Jason M. Cox
ACKNOWLEDGEMENT
State of New Jersey ) s.s.:  County of Union On this
(Seal)  DINOTARY PUBLIC OF NEW JERSEY  My Commission Expires 8/7/2020  Executed this day of, 20
Anthony T. Ginnetti
ACKNOWLEDGEMENT
County of Montgomery ) s.s.:  On this day of, 20, personally appeared before me Anthony T.  Ginnetti to me known, and known by me to be the same person described in and who executed the foregoing instrument,
and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.
(Seal)
Notary Public

Page 5 of 10
Computer Generated Templats "Assignment-Merck Sharp & Dohme, Single Assignee Worldwide" (Assignment) Merck Sharp & Dohme Corp., 11/04/2010

Executed this
<u>Debled Gry Griedele</u> Deodial Guy Guiadean
ACKNOWLEDGEMENT
State of New Jersey ) s.s.:  County of Union  On this day of CIT 20 personally appeared before me Deodial Guy Guiadeen to me known, and known by me to be the same person(s) described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.  (Seal)
(Seal)  Notary Public
Executed this day of, 20
Kristen L. G. Jones
ACKNOWLEDGEMENT
Commonwealth of Pennsylvania ) ) s.s.: County of Montgomery )
On this
(Seal)  Notary Public

Page 6 of 10
Computer Generated Template "Assignment-Merck Sharp & Dehme, Single Assignee Wondwide" (Assignment) Merck Sharp & Dohme Corp., 11/04/2010

Attorney Docket No.: 24658 Executed this \_\_\_\_\_\_ day of \_\_\_\_\_\_\_ 20\_\_\_\_\_ Mark E. Layton **ACKNOWLEDGEMENT** Commonwealth of Pennsylvania County of Montgomery On this day of \_\_\_\_\_\_, 20\_\_\_\_, personally appeared before me Mark E. Lay to me known, and known by me to be the same person(s) described in and who executed the foregoing instrument, and , personally appeared before me Mark E. Layton acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth. (Seal) Notary Public **ACKNOWLEDGEMENT** State of New Jersey ) s.s.: County of Union , personally appeared before me Hong Liu to day of.....! me known, and known by me to be the same person described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.

(Seal)

DINA A. KUSTER NOTARY PUBLIC OF HEW JERSEY My Commission Expires 8/7/2020

Page 7 of 10

Computer Generated Template "Assignment-Mercx Sharp & Donne. Single Assignee Vrondwide" (Assignment) Merck Sharp & Donne Corp. 11/04/2010

Executed this	<u>ry 20 19</u>
Jian Liu	
ACKNOWLEDGEMENT	
State of New Jersey ) s.s.:  County of Union ) s.s.:  On this	20 nersonally appeared before me Jian Liu to me described in and who executed the foregoing instrument, and is (her) own free will for the purpose set forth.
(Seal)	Notary Puplic
Executed this day of	
James J. Perkins	
ACKNOWLEDGEMENT	
Commonwealth of Pennsylvania ) ) s.s.:  County of Montgomery )  On this day of	, 20, personally appeared before me James J.
Perkins to me known, and known by me to be the sa and acknowledged that he (she) executed the same,	, 20, personally appeared before me James J. me person described in and who executed the foregoing instrument, of his (her) own free will for the purpose set forth.
(Seal)	
•••	Notary Public

Page 8 of 10 Computer Senerated Template "Assignment Merck Sharp & Dohme, Single Assignee Worldwide" (Assignment) Merck Sharp & Oohme Corp., 11/04/2010

Attorney Docket No.: 24658 Executed this \_\_\_\_\_\_ day of \_\_\_\_\_\_, 20\_\_ Shawn J. Stachel **ACKNOWLEDGEMENT** Commonwealth of Pennsylvania ) ) s.s.: County of Montgomery On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared before me <u>Shawn J.</u>

<u>Stachel</u> to me known, and known by me to be the same person(s) described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth. (Seal) Notary Public Executed this \_\_\_\_\_\_, 20\_\_\_\_\_ Linda M. Suen-Lai **ACKNOWLEDGEMENT** Commonwealth of Pennsylvania ) ) s.s.: ) County of Montgomery On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared before me <u>Linda M.</u>

<u>Suen-Lai</u> to me known, and known by me to be the same person described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth. (Seal)

Notary Public

Page 9 of 10

Computer Generated Template "Assignment-Merck Sharp & Dohme. Single Assignee Worldwide" (Assignment) Merck Sharp & Dohme Corp. 11/04/2010

			Attorn	ney Docket No.: 24658	
Executed this	day of		, 20		
Zhe Wu	<del></del>				
ACKNOWLEDGEMENT					
Commonwealth of Pennsy	ylvania	) ) s.s.:			
County of Montgomery		) s.s.: )			
				, personally appeared be no executed the foregoing in ill for the purpose set forth.	fore me <u>Zhe Wu</u> to me strument, and
(Seal)					
			No	tary Public	

#### WORLDWIDE ASSIGNMENT

## WHEREAS, I/WE,

- (1) Ashok Arasappan, located at Bridgewater, NJ
- (2) Ian M. Bell, located at Harleysville, PA
- (3) Michael J. Breslin, located at Drexel Hill, PA
- (4) Christopher James Bungard, located at Lansdale, PA
- (5) Christopher S. Burgey, located at Ambler, PA
- (6) Harry R. Chobanian, located at Aberdeen, NJ
- (7) Jason M. Cox, located at Whitehouse Station, NJ
- (8) Anthony T. Ginnetti, located at Perkasie, PA
- (9) Deodial Guy Guiadeen, located at Chesterfield, NJ

- (10) Kristen L. G. Jones, located at Oreland, PA
- (11) Mark E. Layton, located at Harleysville, PA
- (12) Hong Liu, located at Hillsborough, NJ
- (13) Jian Liu, located at Edison, NJ
- (14) James J. Perkins, located at Churchville, PA
- (15) Shawn J. Stachel, located at Perkasie, PA
- (16) Linda M. Suen-Lai, located at Philadelphia, PA
- (17) Zhe Wu, located at Blue Bell, PA

(hereinafter ASSIGNOR(S)), is/are the inventor(s) of the invention described in an application for Patents having the Attorney Docket Number indicated above and the following Title of the Invention:

### 2-AMINO-N-HETEROARYL-NICOTINAMIDES AS NAV1.8 INHIBITORS

and/or in the following application(s):

U.S. Provisional Application No. 62/754,742 filed on 11/2/2018;				
U.S. Application No having a filing date of; and				
PCT International Application No.	having a filing date of			

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, Single Assignee Worldwide" (Assignment) Merck Sharp & Dohme Corp. 11/04/2010

PATENT REEL: 050897 FRAME: 0013

Executed this	day of	, 20	
Ashok Arasappan			
ACKNOWLEDGEMENT			
State of New Jersey	) ) s.s.:		
County of Union	)		
Arasappan to me known,	and known by me to b	, 20, personally appeared before me <u>Ash</u> te the same person(s) described in and who executed the foreg cuted the same, of his (her) own free will for the purpose set for	loing
(Seal)		Notary Public	
Executed this 14	day of <u>Dec</u>	20 18	
Jan M.)			
ian M. Bell			
ACKNOWLEDGEMENT			
Commonwealth of Pennsy	rivania ) ) s.s.:		
County of Montgomery	)		
to me known, and known t	by me to be the same p	$\frac{(n+1)(n+1)}{(n+1)(n+1)}$ , personally appeared before me learn described in and who executed the foregoing instrument of his (her) own free will for the purpose set forth.	i <b>an M. Bel</b> t, and
(Seal)		Ruth a Cullreath.  Notary Public	
COMMONWEALTH OF PE NOTARIAL SE Ruth A. Culbreath, Not Upper Gwynedd Twp., Mont My Commission Expires / MENSER PENNSYLYANIA ASSOCIA	AL tary Public gamery County Lug. 17, 2020	Notary Public	

Page 2 of 10
Computer Generated Template "Assignment-Merck Charp 5 Dohme, Single Assignee Worldwide" (Assignment) Merck Sharp 8 Dohme Corp., 11/04/2010

Executed this 14 th day of December 20 18
Mucho 19. 12 cg him
Michael J. Bresliń
ACKNOWLEDGEMENT
Commonwealth of Pennsylvania )
Commonwealth of Pennsylvania ) ) s.s.; County of Montgomery )
On this
COMMONWEALTH OF PENNSYLVANIA  NOTARIAL SEAL (Seal) Ruth A. Culbreath, Notary Public Upper Gwynedd Twp., Montgomery County My Commission Expires Aug. 17, 2020 MEMBER, PENNSYLVANA ASSOCIATION OF NOTARIES  Notary Public
Executed this 14 <sup>th</sup> day of Dec, 20_18
Christopher James Bungard
ACKNOWLEDGEMENT
Commonwealth of Pennsylvania )
) s.s.: County of Montgomery )
On this $9900000000000000000000000000000000000$
The state of the s
COMMONWEALTH OF PENNSYLVANIA  NOTARIAL SEAL  (Seal)  Ruth A. Cultireath, Notary Public  Upper Gwynedd Twp., Montgomery County My Commission Expires Aug. 17, 2020  Notary Public
MEMBER FERNSYLVANIA ASSOCIATION OF NOTABLES

Executed this	_day of	ele 20 /		
Christopher S. Burgey	<i>D2</i> 2/			
ACKNOWLEDGEMENT		×		
Commonwealth of Penns	ylvania )			
County of Montgomery	) s.s.: }			
On this 14 Burgey to me known, and and acknowledged that he	day of <u>Decemb</u> I known by me to be the s (she) executed the sam	er 20 /8 same person(s) descri e, of his (her) own free	_, personally appeared befored in and who executed the will for the purpose set fort	ore me <u>Christopher :</u> le foregoing instrumer th.
(Seal) Ruth A. Ci Upper Gwynedi My Commissi	ALTH OF PENNSYLVANIA UTARIAL SEAL Ulbresih, Notery Public I Twp., Monigomery County on Expires Aug. 17, 2020 VANIA ASSOCIATION OF NOTARIES	Yuth a (	Lillieath iry Public	
Executed this	day of	. 20		
Harry R. Chobanian				
ACKNOWLEDGEMENT				
State of New Jersey	)			
County of Union	) s.s.: }			
On this <u>Chobanian</u> to me known, instrument, and acknowle	day of and known by me to be t dged that he (she) execut	20 he same person descr ed the same, of his (h	, personally appeared in and who executed the purposer) own free will for the purp	before me <u>Harry R.</u> he foregoing cose set forth.
(Seal)				
		Nota	ry Public	············

Executed this	s day of	
Jason M. Co	3X	
ACKNOWLE	EDGEMENT	
State of New	/ Jersey ) ) s.s.: nion )	
County of Ur	nion )	
On t me known, a acknowledge	this day of and known by me to be the same pers	, 20, personally appeared before me Jason M. Cox to on(s) described in and who executed the foregoing instrument, and f his (her) own free will for the purpose set forth.
(Seal)		
( a stary		Notary Public
		, weekly s don't
Executed this	s <u>14</u> day of <u>Decemb</u> e	<u>20_/8</u>
Anthony T.	Ginnetti	
ACKNOWLE	EDGEMENT	
Commonwea	alth of Pennsylvania ) ) s.s.:	
County of Mo	onigomery )	
On t <u>Ginnetti</u> to n and acknowl	this $\underline{//+}$ day of $/\!$	personally appeared before me Anthony T. e same person described in and who executed the foregoing instrument, ne, of his (her) own free will for the purpose set forth.
(Seal)	COMMONWEALTH OF PENNSYLVANIA  NOTARIAL SEAL  Ruth A. Cuibreath, Notary Public  Upper Gwynedd Twp., Monigomery County My Commission Expires Aug. 17, 2020  MELISER, PENNSYLVANIA ASSOCIATION OF NOTARIE	Yeuth a Cullineath Notary Public

Executed this	day of	, 20	
Deodial Guy	Guadeen		
ACKNOWLE	DGEMENT		
State of New	) s.s.:		
County of Uni On the Guiadeen to instrument, and	nis day of me known, and known by me	, 20, p to be the same person(s) describ e) executed the same, of his (her)	ersonally appeared before me <u>Deodial Guy</u> ed in and who executed the foregoing own free will for the purpose set forth.
(Seal)		Notary i	Public
Xwin	03 day of Janu LU Jung	·	·
Kristen L. G.	Ladd.		
ACKNOWLE  Commonweal  County of Mo	Ith of Pennsylvania )	.s.:	
On the G. Jones to near acknowle	his $3$ day of $$ ne known, and known by medged that he (she) executed	to be the same person described in the same, of his (her) own free will	_, personally appeared before me <b>Kristen L</b> n and who executed the foregoing instrument I for the purpose set forth.
(Seal)	COMMONWEALTH OF PENNS  NOTARIAL SEAL Ruth A. Culbresth, Notary ( Upper Gwynedd Twp., Montgome My Commission Expires Aug WEMBER, PENNSYLVANIA ASSOCIATION (	Public Puth a Carry County Notary F	ululath Public

Page 6 of 10
Computer Generated Template "Assignment-Merck Sharp & Dohme, Single Assignee Worldwide" (Assignment) Merck Sharp & Dohme Corp., 11/04/2010

Executed this 3 day of	Jamay 20 19.
MARK E. Layton	
ACKNOWLEDGEMENT	
Commonwealth of Pennsylvania	· ·
County of Montgomery	) s.s.: )
On this day of to me known, and known by me to be a acknowledged that he (she) executed	January 20 <u>19</u> , personally appeared before me <b>Mark E. Laytor</b> the same person(s) described in and who executed the foregoing instrument, and the same, of his (her) own free will for the purpose set forth.
COMMONWEALTH OF PE NOTARIAL SE. (Seal) Ruth A. Culbreath, Not Upper Gwynedd Twp., Mont, My Cammission Expires A	AL. Bry Public Comery County Under View A Culture  Notary Public Notary Public
Executed this day of	. 20
Hong Liu	······································
ACKNOWLEDGEMENT	
State of New Jersey )	
County of Union ) s.s.:	
	, 20, personally appeared before me <u>Hong Liu</u> to same person described in and who executed the foregoing instrument, and the same, of his (her) own free will for the purpose set forth.
(Seal)	
	Notary Public

Page 7 of 10
Computer Generated Template "Assignment-Marck Sharp & Dohme, Single Assignee Worldwide" (Assignment) Merck Sharp & Colume Corp., 11/14/2010

Executed this	day of	. 20
Jian Liu		
ACKNOWLED	GEMENT	
State of New J	lersey )	
County of Unic	ersey ) ) s.s.: on )	
On thi known, and kn acknowledged	isday of own by me to be the same person(s that he (she) executed the same, of	20, personally appeared before me <u>Jian Liu</u> to me i) described in and who executed the foregoing instrument, and f his (her) own free will for the purpose set forth.
(Seal)		
		Notary Public
Executed this	<u> 3</u> day of <u> </u>	104 20 19.
James J. Peri	ins Dockin	
ACKNOWLED	OGEMENT	
Commonwealt	h of Pennsylvania )	
County of Mon	-	
On thi <u>Perkins</u> to me and acknowled	is day of	same person described in and who executed the foregoing instrument, e, of his (her) own free will for the purpose set forth.
	COMMONWEALTH OF PENNSYLVANIA	
(Seal)	NOTARIAL SEAL Ruth A. Culbreath, Notary Public Upper Gwynedd Twp. Monigomery Count My Commission Expires Aug. 17, 2020 SENBER PENNSYLVANIA ASSOCIATION OF NOTARIE	

Page 8 of 10
Computer Generated Template "Assignment-Marck Sharp 8 Dohme, Single Assignee Worldwide" (Assignment) Marck Sharp 8 Ookme Corp. 11/04/2010

Executed this 14 day of Lawrence 2018.
Shawn J. Stachel
ACKNOWLEDGEMENT
Commonwealth of Pennsylvania )
) s.s.: County of Montgomery )
On this <u>/4</u> day of <u>December</u> 20 <u>/8</u> personally appeared before me <u>Shawn J.</u> <u>Stachel</u> to me known, and known by me to be the same person(s) described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.
COMMONWEALTH OF PENNSYLVANIA  NOTARIAL SEAL Ruth A. Culbreath, Notery Public  (Seal)  Upper Gwynedd Twp., Montgomery County My Commission Expires Aug. 17, 2020 MENSER, FENNSYLVANIA ASSOCIATION OF NOTARIES  Notary Public
Executed this 14 day of <u>December</u> 20/8
<u>Lindl Quilai</u>
Linda M. Suen-Lai
ACKNOWLEDGEMENT
Commonwealth of Pennsylvania ) ) s.s.:
County of Montgomery )
On this 4 day of December 20 8 personally appeared before me Linda M. Suen-Lai to me known, and known by me to be the same person described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set forth.
COMMONWEALTH OF PENNSYLVANIA  NOTARIAL SEAL (Seal) Ruth A. Cuibreath, Notary Public Upper Gwynedd Twp., Montgomery County My Commission Expires Aug. 17, 2020 MENNER, FENNSYLVANIA ASSOCIATION OF NOTABLES  Notary Public

Executed this	s <u>18</u> day of <u>Decemb</u> e	<u>er</u> , 20 <u>/8</u>		
2	Annual Marie Control of the Control			
Zhe Wu				
ACKNOWLE	DGEMENT			
Commonwea	ilth of Pennsylvania )			
County of Mo	ontgomery ) s.s.:			
кноми, ана к	his $\frac{18}{2000}$ day of $\frac{1}{200000000000000000000000000000000000$	i described in and wri	o executed the toregoing instr	e me <u>Zhe Wu</u> to me ument, and
(Seal)	COMMONWEALTH OF PENNSYLVANIA  NOTARIAL SEAL  Ruth A. Culbreath, Notary Public  Upper Gwynedd Twp., Montgomery County	Ruth a	Culbreath	···
	My Commission Expires Aug. 17, 2020 MEMBER, PENNSYLVANIA ASSOCIATION OF NOTANIES	Mot	ary Public	

Accepted and agreed to by ASSIGNEE Merck Sharp & Dohme Corp.

Name: Catherine D. Fitch

Title:

Managing Counsel, Patents

Date:

ACKNOWLEDGEMENT

State of New Jersey

County of Union

) S.S.:

day of On this Catherine D. Fitch to me known, and known by me to be the same person(s) described in and who executed the foregoing instrument, and acknowledged that he (she) executed the same, of his (her) own free will for the purpose set

, personally appeared before me

(Seal)

Notary Public

KAREN ANN TORKILDSEN Notary Public. State of New Jersey My Commission Expires October 22, 2023

**PATENT** REEL: 050897 FRAME: 0023

**RECORDED: 10/31/2019**