504178311 01/13/2017

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4224990

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
KEVIN ADLEM	10/25/2016
OWAIN LLYR PARRI	10/21/2016
RACHEL TUFFIN	10/21/2016
HASSAN ARASI	10/21/2016
BENJAMIN SNOW	10/25/2016

RECEIVING PARTY DATA

Name:	MERCK PATENT GMBH
Street Address:	FRANKFURTER STRASSE 250
City:	DARMSTADT
State/Country:	GERMANY
Postal Code:	64293

PROPERTY NUMBERS Total: 1

Property Type	Number		
Application Number:	15326204		

CORRESPONDENCE DATA

Fax Number: (703)243-6410

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: 703-243-6333

Email: docketing@mwzb.com

Correspondent Name: MILLEN, WHITE, ZELANO & BRANIGAN, P.C.

Address Line 1: 2200 CLARENDON BLVD.

Address Line 2: SUITE 1400

Address Line 4: ARLINGTON, VIRGINIA 22201

ATTORNEY DOCKET NUMBER:	MERCK-4539
NAME OF SUBMITTER:	ROBIN ESCOBAR
SIGNATURE:	/Robin Escobar/
DATE SIGNED:	01/13/2017
	This document serves as an Oath/Declaration (37 CFR 1.63).

PATENT 504178311 REEL: 040968 FRAME: 0970

Total Attachments: 5 source=MERCK-4539_DualDecAssignment#page1.tif source=MERCK-4539_DualDecAssignment#page2.tif source=MERCK-4539_DualDecAssignment#page3.tif source=MERCK-4539_DualDecAssignment#page4.tif source=MERCK-4539_DualDecAssignment#page5.tif

PATENT REEL: 040968 FRAME: 0971

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND ASSIGNMENT FOR SINGLE ASSIGNEE

Title of Invention	BIMES	OGENIC COMPOUNDS AND MESOGENIC MEDIA P 14/128-pl/sw	
As the below named inventor, I hereby declare that:			
This declaration		The attached application, or	
is directed to:	Þ	United States Application or PCT International Application number <u>PCT/EP2015/001247</u> filed on 19 June 2015	
	2.7	ation was made or authorized to be made by me.	
I believe that I am	the origin	nal inventor or an original joint inventor of a claimed invention in the application.	
all patent(s) listed	of to as the	Merck Patent GmbH Frankfurter Strasse 250 s4293 Darmstadt / DE e ASSIGNEE, is desirous of acquiring the entire right, title, and interest in and to said invention and including any and all earlier priority rights (U.S. and foreign), divisions and continuations thereof, rats, reissues, reexaminations and extensions thereof.	
ASSIGNOR here right, title and into and all Letters Parthereof, and in an to accrue with resinvention, SAID including any and which may be graright to sue for da arising from or aprenewals, reissues representatives, in	by assigns arest in an tent which do to any a pect to the ASSIGNE all earlies mages occupertaining, reexami, as ample	SETH that for good and valuable consideration, the receipt whereof is hereby acknowledged, is sells, and transfers to ASSIGNEE, its assigns and legal representatives, the entire and exclusive d to said invention and patent(s), including any and all divisions and continuations thereof, and any image be granted therefor, including any and all renewals, reissues, reexaminations and extensions and all U.S. (including provisional) or foreign priority and/or convention rights or benefits accruing or efficiency filters and/or any countries foreign thereto concerning said (E, its assigns and legal representatives to have, hold, exercise, and enjoy said invention and patent, in priority rights (U.S. and foreign), divisions and continuations thereof, any and all Letters Patent offer, including any and all renewals, reissues, reexaminations and extensions thereof, including the courring before the assignment, with all the rights, powers, privileges and advantages in anywise a thereto, for and during the term or terms of any and all such Letters Patent, including any and all nations and extensions thereof, for the use and benefit of ASSIGNEE and its assigns and legal and beneficial a manner to all intents and purposes as the ASSIGNOR might or could have held and ignment had not been made.	
and foreign count	ries for sa	Chereby agrees to execute all papers that may be necessary to file applications in the United States id invention and to assign the same to said ASSIGNEE, its assigns and legal representatives and to at may be needed in connection with securing Letters Patents thereon.	
		authorizes and requests the Commissioner of Patents and Trademarks to issue a Letters Patent on authorizes thereof, to ASSIGNEE, its assigns and legal representatives, in accordance herewith.	
	nation wh	hereby grant(s) the law firm of Millen. White, Zelano & Branigan, P.C. the power to insert on this ich may be necessary or desirable in order for the United States Patent and Trademark Office to ent.	
		IN TESTIMONY WHEREOF this assignment is executed by ASSIGNOR	
		edge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by more than five (5) years, or both.	
LEGAL NAME (Inventor: K	OF INVEN		
Signature:	10	dat -	

MILLEN, WHITE, ZELANO & BRANGAN, P.C. ATTORNEYS AT LAW ARLINGTON COURTHOUSE PLAZA 2200 Clarendon Boulevard | Suite 1400 | Arlington VA 22201 Telephone: 703,243,6333 | Fax: 703,243,6410

EMAIL: MAIL@MWZB.COM

Effective, September 16, 2012

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND ASSIGNMENT FOR SINGLE ASSIGNEE

Title of Invention	BIMESOGENIC COMPOUNDS AND MESOGENIC MEDIA	P 14/128-pl/sw
As the below nan	ned inventor, I hereby declare that:	
This declaration		
1 mis occidention		
is directed to:	United States Application or PCT International Application number 19 June 2015	PCT/EP2015/001247 filed on
The above-identif	fied application was made or authorized to be made by me.	
I believe that I am	the original investor or an original joint investor of a claimed investion in the	annii cation
AND WHEREAS		uk haringang
	Merck Patent GrapH	
	Frankfurter Strasse 250	
hereinafter referre	64293 Darmstadt / DE	
all patent(s) listed including any and	ed to as the ASSIONEE, is desirous of acquiring the entire right, title, and interest above, including any and all earlier priority rights (U.S. and foreign), divisions all renewals, reissues, reexaminations and extensions thereof.	a in and to said invention and and continuations thereof,
right, title and interest and all Letters Pat thereof, and in and to accrue with respinvention, SAID A including any and which may be graining from or apprenewals, reissues, representatives, in enjoyed the same, AND AS and foreign countriexecute any other parameters any and all division. The under assignment information and in and and all division.	MITNESSETH that for good and valuable consideration, the receipt whereof is I by assigns, sells, and transfers to ASSIGNEE, its assigns and legal representative test in and to said invention and patent(s), including any and all divisions and event which may be granted therefor, including any and all renewals, reissues, rec. I to any and all U.S. (including provisional) or foreign priority and/or convention peet to the filing or securing of patents in the United States and/or any countries ASSIGNEE, its assigns and legal representatives to have, hold, exercise, and only all earlier priority rights (U.S. and foreign), divisions and continuations thereof, need therefor, including any and all renewals, reissues, reexaminations and extendages occurring before the assignment, with all the rights, powers, privileges an overlaining thereto, for and during the term or terms of any and all such Letters Processing thereto, for and during the term or terms of any and all such Letters Processing therefore a manner to all intents and purposes as the ASSIGNEE as as ample and benefitial a manner to all intents and purposes as the ASSIGNOR if the assignment had not been made. SSIGNOR hereby agrees to execute all papers that may be necessary to file applies for said invention and to assign the same to said ASSIGNEE, its assigns and papers that may be necessed in connection with securing Letters Patents thereon. SSIGNOR authorizes and requests the Commissioner of Patents and Trademarks as and continuations thereof, to ASSIGNEE, its assigns and legal representatives and continuations thereof, to ASSIGNEE, its assigns and legal representatives as and continuations thereof, to ASSIGNEE, its assigns and legal representatives as and continuations thereof, to ASSIGNEE, its assigns and legal representatives as and continuations thereof, to ASSIGNEE, its assigns and legal representatives as and continuations thereof.	is, the entire and exclusive partinuations thereof, and any saminations and extensions a rights or benefits accruing or foreign thereto concerning said by said invention and patent, any and all Letters Patent atoms thereof, including the d advantages in anywise atent, including any and all and its assigns and legal might or could have held and teations in the United States legal representatives and to to issue a Letters Patent on s, in accordance herewith.
properly record this	s document.	nd I rademark Office to
	IN TESTIMONY WHEREOF this assignment is executed by ASSIGNO	
	acknowledge that any willful false statement made in this declaration is punishal nt of not more than five (5) years, or both.	tle under 18 U.S.C. 1601 by
LEGAL NAME OF		4
	vain Llyr PARRI Date: 21/10	<i>1201</i> 6
Signature: <u>(</u>	"Justin Hole " " " " " " " " " " " " " " " " " " "	

MILLEN, WHITE, ZELANO & BRANGAN, P.C. ATTORNEYS AT LAW ARLINGTON COURTHOUSE PLAZA 2290 CLARENDON BOULEVARD | SUITE 1400 | ARLUNGTON VA 22201 TELEPHONE: 703.243.6333 | FAX: 703.243.6410

EMAIL: MAIL@MWZB.COM

Effective, September 15, 2012

PATENT REEL: 040968 FRAME: 0973

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND ASSIGNMENT FOR SINGLE ASSIGNEE

Title of Invention	BIMESOGENIC COMPOUNDS AND MESOGENIC MEDIA P 14/128-pl/sw
As the below nam	ied inventor, I hereby declare that:
This declaration	☐ The attached application, or
is directed to:	United States Application or PCT International Application number <u>PCT/EP2015/001247</u> filed on 19 June 2015
	ied application was made or authorized to be made by me.
	the original inventor or an original joint inventor of a claimed invention in the application.
all patent(s) listed	Merck Patent GmbH Frankfurter Strasse 250 64293 Darmstadt / DE d to as the ASSIGNEE, is desirous of acquiring the entire right, title, and interest in and to said invention and above, including any and all earlier priority rights (U.S. and foreign), divisions and continuations thereof, all renewals, reissues, reexaminations and extensions thereof.
ASSIGNOR herefright, title and into and all Letters Parthereof, and in any to accrue with restavention, SAID / including any and which may be granglet to sue for datarising from or aptenewals, reissues representatives, in	WITNESSETH that for good and valuable consideration, the receipt whereof is hereby acknowledged, by assigns, sells, and transfers to ASSIGNEE, its assigns and legal representatives, the entire and exclusive trest in and to said invention and patent(s), including any and all divisions and continuations thereof, and any cent which may be granted therefor, including any and all renewals, reissues, reexaminations and extensions of to any and all U.S. (including provisional) or foreign priority and/or convention rights or benefits accruing or peet to the filing or securing of patents in the United States and/or any countries foreign thereto concerning said ASSIGNEE, its assigns and legal representatives to have, hold, exercise, and enjoy said invention and patent, all earlier priority rights (U.S. and foreign) divisions and continuations thereof, any and all Letters Patent med therefor, including any and all renewals, reissues, reexaminations and extensions thereof, including the mages occurring before the assignment, with all the rights, powers, privileges and advantages in anywise pertaining thereto, for and during the term or terms of any and all such Letters Patent, including any and all, reexaminations and extensions thereof, for the use and benefit of ASSIGNEE, and its assigns and legal as ample and beneficial a manner to all intents and purposes as the ASSIGNOR might or could have held and if the assignment had not been made.
and foreign countr	SSIGNOR hereby agrees to execute all papers that may be necessary to file applications in the United States ries for said invention and to assign the same to said ASSIGNEE, its assigns and legal representatives and to papers that may be needed in connection with securing Letters Patents thereon.
AND As any and all divisio	SSIGNOR authorizes and requests the Commissioner of Patents and Trademarks to issue a Letters Patent on ins and continuations thereof, to ASSIGNEE, its assigns and legal representatives, in accordance herewith.
The und assignment inform properly record th	ersigned hereby grant(s) the law firm of Millen, White. Zelano & Branigan, P.C. the power to insert on this nation which may be necessary or desirable in order for the United States Patent and Trademark Office to is document.
	IN TESTIMONY WHEREOF this assignment is executed by ASSIGNOR
I hereby line or imprisonm	acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by ent of not more than five (5) years, or both.
LEGAL NAME O	FINVENTOR achel TUFFIN Date: 21st October ZO16
Signature:	14 reff.

MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
ATTORNEYS AT LAW
ARLINGTON COORTHOUSE PLAZA
2200 CLARENDON BOULEVARD! SUITE 1406 | ARLINGTON VA 22201
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Effective September 16, 2012

PATENT REEL: 040968 FRAME: 0974

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND ASSIGNMENT FOR SINGLE ASSIGNEE

Title of Invention	BIMES	OGENIC COMPOUNDS AND MESOGENIC MEDIA P 14/128-pl/sw
As the below nan	ed invent	or, I hereby declare that:
This declaration		The attached application, or
is directed to:	A	United States Application or PCT International Application number <u>PCT/EP2015/001247</u> filed on 19 June 2015
		ation was made or authorized to be made by me.
I believe that I am	the origin	tal inventor or an original joint inventor of a claimed invention in the application.
all patent(s) listed	f to as the above, in	Acrek Patent GmbH rankfurter Strasse 250 4293 Darmstadt / DE - ASSIGNEE, is desirous of acquiring the entire right, title, and interest in and to said invention and cluding any and all earlier priority rights (U.S. and foreign), divisions and continuations thereof, als, reissues, reexaminations and extensions thereof.
ASSIGNOR herel right, title and into and all Letters Pai thereof, and in and to accrue with resinvention, SAID / including any and which may be graright to sue for data arising from or aptremewals, reissues representatives, in enjoyed the same.	ny assigns erest in an ent which I to any as pect to the ASSIGNE, all earlier and earlier mages oce pertaining , reexamir as ample if the assi	ETH that for good and valuable consideration, the receipt whereof is hereby acknowledged, sells, and transfers to ASSIGNEE, its assigns and legal representatives, the entire and exclusive d to said invention and patent(s), including any and all divisions and continuations thereof, and any may be granted therefor, including any and all renewals, reissues, reexaminations and extensions at all U.S. (including provisional) or foreign priority and/or convention rights or benefits accruing or filting or securing of patents in the United States and/or any countries foreign thereto concerning said is, assigns and legal representatives to have, hold, exercise, and enjoy said invention and patent, priority rights (U.S. and foreign), divisions and continuations thereof, any and all Letters Patent for, including any and all renewals, reissues, reexaminations and extensions thereof, including the turning before the assignment, with all the rights, powers, privileges and advantages in anywise thereto, for and during the term or terms of any and all such Letters Patent, including any and all lations and extensions thereof, for the use and benefit of ASSIGNEE and its assigns and legal and beneficial a manner to all intents and purposes as the ASSIGNOR might or could have held and griment had not been made.
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I hereby fine or imprisonme	acknowle ant of not	dge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by more than five (5) years, or both.
LEGAL NAME O Inventor: H	F INVEN assan AR	in the second of
Signature:		4

MILLEN, WHITE, ZELANO & BRANIGAN, P.C. ATTORNEYS AT LAW ARLINGTON COURTHOUSE PLAZA 2200 CLARENDON BOULEVARD | SUITE 1400 | ARLINGTON VA 22201 TELEPHONE: 703.243.6333 | FAX: 703.243.6410

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Effective, September 16, 2012

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As the below nam	ed invent	or. I hereby declare that:	
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is directed to:	***	United States Application or PCT International Application number PCI 19 June 2015	F/EP2015/001247 filed on
The above-identif	ied applic	ation was made or amhorized to be made by me.	
I believe that I am	the origin	nal inventor or an original joint inventor of a claimed invention in the appl	lication.
AND WHEREAS			
1	F 6	Aerek Patent GmbH Frankfurter Strasse 250 4293 Darmstadt / DE	
all patent(s) listed	above, in	e ASSIGNEE, is destrous of acquiring the entire right, title, and interest in cluding any and all carlier priority rights (U.S. and foreign), divisions and als, reissues, reexaminations and extensions thereof.	and to said invention and continuations thereof.
ASSIGNOR herel right, title and inte and all Letters. Pat thereof, and in and to accrue with responsion to accrue with responsion, SAID Aincluding any and which may be gravified to sue for day artising from or ap renewals, reissues representatives, in	by assigns, and any arrest in any arrest in any arrest to the ASSIGNE; all earlier mages occurred the rectaining, reexamir as ample	ETH that for good and valuable consideration, the receipt whereof is here sells, and transfers to ASSIGNEE, its assigns and legal representatives, to do said invention and patent(s), including any and all divisions and contimity be granted therefor, including any and all renewals, reissues, reexample all U.S. (including provisional) or foreign priority and/or convention rightling or securing of patents in the United States and/or any countries for E. its assigns and legal representatives to have, hold, exercise, and enjoy supportry rights (U.S. and foreign), divisions and continuations thereof, any for, including any and all renewals, reissues, reexaminations and extension turing before the assignment, with all the rights, powers, privileges and at thereto, for and during the term or terms of any and all such Letters Pater nations and extensions thereof, for the use and benefit of ASSIGNEE and and beneficial a manner to all intents and purposes as the ASSIGNOR mignment had not been made.	he entire and exclusive nuations thereof, and any sinations and extensions ghts or benefits accruing or eign thereto concerning said aid invention and patent, and all Letters Patent ins thereof, including the dvantages in anywise at, including any and all its assigns and legal
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I hereby fine or imprisonme	acknowle mi of not	dge that any willful false statement made in this declaration is punishable more than five (5) years, or both.	under 18 U.S.C. 1001 by
LEGAL NAME O	The State of the S		
Inventor: B	enjamin S	NOW Date: 25/10/16	6
Signature:	enjamin s		

MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
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EMAIL: MAIL@MWZB.COM

Effective, September 16, 2012

PATENT REEL: 040968 FRAME: 0976

RECORDED: 01/13/2017