PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4784033

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
TAKANORI TAKEDA	12/21/2017
MASAHIKO OKAMURA	12/19/2017
NORIHIKO TANAKA	12/18/2017
YASUSHI SUGIYAMA	12/19/2017

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:	15746157

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.

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Email: mail@mwzb.com

Correspondent Name: MILLEN, WHITE, ZELANO & BRANIGAN - AMB

Address Line 1: 2200 CLARENDON BLVD.

Address Line 2: SUITE 1400

Address Line 4: ARLINGTON, VIRGINIA 22201

ATTORNEY DOOKET NUMBER.	MEDOK 4075
ATTORNEY DOCKET NUMBER:	MERCK-4675
NAME OF SUBMITTER:	AUBREY M. BROOKS
SIGNATURE:	/Aubrey M. Brooks/
DATE SIGNED:	01/19/2018
	This document serves as an Oath/Declaration (37 CFR 1.63).
	•

Total Attachments: 4

PATENT REEL: 044666 FRAME: 0383

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PATENT REEL: 044666 FRAME: 0384

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	LIQUID-CRYSTAL MEDIUM
As the below nam	red invernor, I hereby declare that:
This declaration	The attached application, or
is directed to:	United States Application or PCT International Application number PCT/EP2016/001196 filed on July 12, 2016
The above-identif	ied application was made or authorized to be made by me.
I believe that I am	the original inventor or an original joint inventor of a claimed invention in the application.
all patent(s) listed including any and NOW. ASSIGNOR bereinght, title and intra and all Letters Parthereof, and in am to accrue with resinvention, SAID including any and which may be graright to sue for da	Merck Patent GmbH Prankfurter Strasse 250 64293 Damistadt DE and 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. 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 erest in and to said invention and patent(s), including any and all divisions and continuations thereof, and any tent which may be granted therefor, including any and all renewals, reissues, reexaminations and extensions d to any and all U.S. (including provisional) or foreign priority and/or convention rights or benefits accruing or pect to the filling 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 inted 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
representatives, ir enjoyed the same. AND A and foreign count	is reexaminations and extensions thereof, for the use and benefit of ASSIGNEE and its assigns and legal is a 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. SSIGNOR hereby agrees to execuse 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
execute any other	papers that may be needed in connection with securing Letters Patents thereon.
AND ASSIGNOR authorizes and requests the Commissioner of Patents and Trademarks to issue a Letters Patent on any and all divisions and continuations thereof, to ASSIGNEE, its assigns and legal representatives, in accordance herewith.	
The undersigned hereby grant(s) the law firm of Millen, White, Zelano & Branigan, P.C. the power to insert on this assignment information which may be necessary or desirable in order for the United States Patent and Trademark Office to properly record this document.	
	IN TESTIMONY WHEREOF this assignment is executed by ASSIGNOR
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1901 by fine or imprisonment of not more than five (5) years, or both.	
LEGAL NAME (DE INVENTOR
Inventor	Cakanori TAKEDA Date: 2/ Qec . 2017
Signature:	Takaror, Takeda.

Millen, White, Zelano & Branigan, P.C.
Attorneys at Law
Arlington Courthouse Plaza
2200 Clarendon Boulevard (Suite (460) Arlington VA 22201
Telephone: 703,243,6333 (Fax: 703,243,6410
Email: Mab @nwzb.com

DOCKET NO.: MERCK-4678

PATENT REEL: 044666 FRAME: 0385

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	EIQUID-CRYSTAL MEDIUM
As the below nam	ed inventor, I hereby declare that:
This declaration	The attached application, or
is directed to:	United States Application or PCT International Application number PCT/EP2016/001196 filed on July 12, 2016
The above-identifi	ied application was made or authorized to be made by me.
I believe that I am	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 herel right, title and inte and all Letters Pat thereof, and in and to accrue with rest invention, SAID Aincluding any and which may be grangint to sue for dail arising 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 ent which may be granted therefor, including any and all renewals, reissues, reexaminations and extensions it to any and all U.S. (including provisional) or foreign priority and/or convention rights or benefits accruing or securing 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 inted 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.
	SSIGNOR authorizes and requests the Commissioner of Patents and Trademarks to issue a Letters Patent on one and continuations thereof, to ASSIGNEE, its assigns and legal representatives, in accordance herewith.
The und assignment inform properly record th	tersigned hereby grant(s) the law firm of Millen. White, Zelano & Branigan, P.C. the power to insert on this union 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
	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 C Inventor: N	OF INVENTOR Assabiko OKAMURA Date: (9 December, 2017
Signature:	Trosal to Oterina

MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
ATTORNEYS AT LAW
ARLINGTON COURTHOUSE PLAZA

2200 Clarendon Boulevard (Suite 1400 i Arlington VA 22201 Telephone: 703.243.6333 19ax: 703.243.6410

EMAIL: MAIL@MWZB.COM

DOCKET NO.: MERCK-4675

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	LIQUID-CRYSTAL MEDIUM
As the below nam	sed inventor, I hereby declare that:
This declaration	The attached application, or
is directed to:	United States Application or PCT International Application number <u>PCT/EP2016/001196</u> filed on July 12, 2016
The above-identif	ied application was made or authorized to be made by me.
I believe that I am	the original inventor or an original joint inventor of a claimed invention in the application.
AND WHEREAS	
all patent(s) listed	Merck Patent GmbH Frankfurter Strasse 250 64293 Darmstadt DE at 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,
including any and	all renewals, reissues, reexaminations and extensions thereof.
ASSIGNOR heret right, title and inte and all Letters Pat thereof, and in and to accrue with res- invention, SAID / including any and which may be gra- right to sue for da arising from or ap- renewals, reissues- representatives, in enjoyed the same,	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 erest in and to said invention and patent(s), including any and all divisions and continuations thereof, and any tent which may be granted therefor, including any and all renewals, reissues, reexaminations and extensions d to any and all U.S. (including provisional) or foreign priority and/or convention rights or benefits accruing or pect 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 inted 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 a reexaminations and extensions thereof, for the use and benefit of ASSIGNEE and its assigns and legal as a 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 count	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.
	SSIGNOR authorizes and requests the Commissioner of Patents and Trademarks to issue a Letters Patent on one and continuations thereof, to ASSIGNEE, its assigns and legal representatives, in accordance herewith.
The undersigned hereby grant(s) the law firm of Millen, White, Zelano & Branigan, P.C. the power to insert on this assignment information which may be necessary or desirable in order for the United States Patent and Trademark Office to properly record this document.	
	IN TESTIMONY WHEREOF this assignment is executed by ASSIGNOR
	acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by tent of not more than five (5) years, or both.
LEGAL NAME (the same of the sa
Inventor: 1	
Signature:	Nahila Cita

Millen, White, Zelano & Branigan, P.C. Attorneys at Law Arlington Courthouse Plaza

2200 Clarendon Boulevard | Suite 1400 | Arlington VA 22201 Telephone: 703.243.63331Fax: 703.243.6410

EMAIL: MAIL@MWZB.COM

DOCKET NO.: MERCK-4675

PATENT REEL: 044666 FRAME: 0387

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 LIQUII Invention	D-CRYSTAL MEDIUM
As the below named invent	or, I hereby declare that:
This declaration	The attached application, or
is directed to:	United States Application or PCT International Application number PCT/EP2016/001196 filed on July 12, 2016
The above identified applic	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.
hereinafter referred to as the all patent(s) listed above, in	Merck Patent GmbH Frankfurter Strasse 250 54293 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, rais, reissues, reexaminations and extensions thereof.
ASSIGNOR hereby assignified, title and interest in ar and all Letters Patent which thereof, and in and to any a to accrue with respect to the invention, SAID ASSIGNE including any and all earlies which may be granted there right to sue for damages oc arising from or appertaining renewals, reissues, reexaming representatives, in as ample	SETH that for good and valuable consideration, the receipt whereof is hereby acknowledged, a sells, and transfers to ASSIGNEE, its assigns and legal representatives, the entire and exclusive and 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 and ill U.S. (including provisional) or foreign priority and/or convention rights or benefits accruing or effing or securing of patents in the United States and/or any countries foreign thereto concerning said IE, its assigns and legal representatives to have, hold, exercise, and enjoy said invention and patent, repriority rights (U.S. and foreign), divisions and continuations thereof, any and all Letters Patent effor, including any and all renewals, reissues, reexaminations and extensions thereof, including the curring before the assignment, with all the rights, powers, privileges and advantages in anywise g 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 igniment had not been made.
and foreign countries for sa	R hereby agrees to execute all papers that may be necessary to file applications in the United States and invention and to assign the same to said ASSIGNEE, its assigns and legal representatives and to ast may be needed in connection with securing Letters Patents thereon.
	R authorizes and requests the Commissioner of Patents and Trademarks to issue a Letters Patent on intimutations thereof, to ASSIGNEE, its assigns and legal representatives, in accordance herewith.
The undersigned assignment information wh properly record this docum	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 t more than five (5) years, or both.
LEGAL NAME OF INVE	NTOR UGIYAMA Date: 7 Dec. 2017
Signature: Ta	sushi Susiuma

MILLEN, WHITE, ZELANO & BRANIGAN, P.C. ATTORNEYS AT LAW ARLENGTON COURTHOUSE PLAZA 2200 CLARENDON BOULEVARD | SUITE 1400 | ARLINGTON VA 2220 | TELEPHONE: 703.243.6333 | Fax: 703.243.6410

EMAR: MAH @MWZB.COM

DOCKET NO.: MERCK-4675

PATENT REEL: 044666 FRAME: 0388

RECORDED: 01/19/2018