

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5644790

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
MATRIX GENETICS, LLC	04/05/2017
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	LUMEN BIOSCIENCE, INC.
<b>Street Address:</b>	C/O COOLEY 1700 SEVENTH AVENUE
<b>Internal Address:</b>	SUITE 1900
<b>City:</b>	SEATTLE
<b>State/Country:</b>	WASHINGTON
<b>Postal Code:</b>	98101
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16122250
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(202)842-7899
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<b>Email:</b>	cphillipnouchet@cooley.com, zpatdcdocteting@cooley.com
<b>Correspondent Name:</b>	COOLEY LLP
<b>Address Line 1:</b>	1299 PENNSYLVANIA AVENUE NW, SUITE 700
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<b>ATTORNEY DOCKET NUMBER:</b>	LUBI-006/04US 330572-2130
<b>NAME OF SUBMITTER:</b>	ANNE E. FLECKENSTEIN
<b>SIGNATURE:</b>	/Anne E Fleckenstein/
<b>DATE SIGNED:</b>	07/31/2019
<b>Total Attachments: 8</b>	
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**CONFIRMATORY ASSIGNMENT OF PATENT RIGHTS**  
**Company to Company**

WHEREAS, **MATRIX GENETICS, LLC**, a limited liability company having its principal place of business at 1600 Fairview Avenue E., Suite 300, Seattle, Washington 98102 (herein referred to as “Assignor”) has rights in the following patent applications and the invention(s) set forth in applications for patent of the United States and elsewhere, and which are laid out in the attached Schedule A.

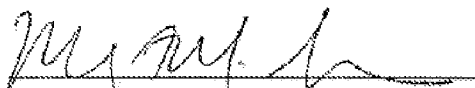
WHEREAS, **LUMEN BIOSCIENCE, INC.**, a corporation having its principal place of business at c/o Cooley LLP, 1700 Seventh Avenue, Suite 1900, Seattle, Washington 98101 its successors, legal representatives and assigns, (the “Assignee”), is desirous of acquiring Assignor’s entire right, title and interest in and to said patent applications and the invention(s) disclosed therein; and in and to any letters patent(s) that claim the priority benefit of said patent applications in the United States and in any and all foreign countries; the right to file applications for patent of the United States or other countries on the invention(s) disclosed therein; any application for patent of the United States or other countries claiming priority to these applications; any provisional or other right to recover damages, including royalties, for prior infringements of these applications; and any patent of the United States or other countries that may be granted therefor or thereon.

NOW, THEREFORE, for good and sufficient consideration, the receipt of which is hereby acknowledged, the Assignor has sold, assigned, transferred, and set over, and by these presents does sell, assign, transfer, and set over, unto the Assignee, its successors, legal representatives, and assigns Assignor’s entire right, title, and interest in and to said invention(s), said application(s), and said patent(s), the right to file applications on said invention(s), Assignor’s entire right, title and interest in and to any applications for Letters Patent of the United States or other countries claiming priority to said application(s), including divisions, continuations, and continuations-in-part of said application(s), the right to recover any and all past, present, and future damages, including provisional or other royalties, for any and all past, present, and future infringements of said application(s) and said patent(s), Assignor’s entire right, title and interest in and to any and all Letters Patent or Patents, United States or foreign, to be obtained for said invention(s) and said application(s), entire right, title and interest in and to any and all reissues and extensions of said patent(s), and all rights under the Hague Convention, the Paris Convention for the Protection of Industrial Property, and under the Patent Cooperation Treaty, the same to be held and enjoyed by the Assignee, for its own use and behalf and the use and behalf of its successors, legal representatives, and assigns, to the full end of the term or terms for which Letters Patent or Patents may be granted as fully and entirely as the same would have been held and enjoyed by the Assignor had this sale and assignment not been made;

AND for the same consideration, the Assignor hereby covenants and agrees to and with the Assignee, its successors, legal representatives, and assigns, that, at the time of execution and delivery of these presents, the Assignor is the sole and lawful owner of Assignor’s entire right, title, and interest in and to said invention(s), said application(s), and said patent(s), and that the Assignor has good and full right and lawful authority to sell and convey the same in the manner herein set forth;

AND for the same consideration, the Assignor hereby covenants and agrees to and with the Assignee, its successors, legal representatives, and assigns that the Assignor will, whenever counsel of the Assignee, or the counsel of its successors, legal representatives, and assigns, shall advise that any proceeding in connection with said invention(s), said application(s), said patent(s), any application claiming priority to said application(s), any reissue or extension of said patent(s), and any United States or foreign Letters Patent or Patents for said invention(s) or said application(s), including interference and derivation proceedings, and any post-grant proceedings (e.g., opposition proceedings, post-grant reviews, *Inter partes* reviews, supplemental examinations, etc.), is lawful and desirable, sign all papers and documents, take all lawful oaths, and do all acts necessary or required to be done for the procurement, maintenance, enforcement and defense of Letters Patent or Patents for said invention(s), without charge to the Assignee, its successors, legal representatives, and assigns, but at the cost and expense of the Assignee, its successors, legal representatives, and assigns;

AND the Assignor hereby requests the Commissioner of Patents to issue any and all aforementioned patent(s) of the United States to the Assignee, as the Assignee of said invention(s) and the Letters Patent to be issued thereon for the sole use and behalf of the Assignee, its successors, legal representatives, and assigns.

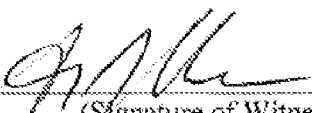
Date: 04/05/2017By: 

Name: Margaret McCormick

Title: Chief Executive Officer

Company: Matrix Genetics, LLC

I certify that I know or have satisfactory evidence that Margaret McCormick signed this instrument of his/her own free will, as a voluntary act for the uses and purposes mentioned in the instrument.

Date 04/05/2017  
(Type or Print)Signed at Seattle, WAGary J. Kocher  
(Type or Print Name of Witness)  
(Signature of Witness)

Date: \_\_\_\_\_

By: Brian Finrow

Name: Brian Finrow

Title: CEO

Company: **LUMEN BIOSCIENCE, INC.**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of \_\_\_\_\_ )  
 ) ss.  
County of \_\_\_\_\_ )

On \_\_\_\_\_, before me, \_\_\_\_\_, Notary Public, personally appeared \_\_\_\_\_, who proved to me on the basis of satisfactory evidence, to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

\_\_\_\_\_  
Signature of Notary Public

Place Notary Seal Above

My Commission Expires: \_\_\_\_\_

## Schedule A

File No.	Application no.	Publication no.	Title
M077-0002USP1	US 61/107,979	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING TRIGLYCERIDES
M077-0003USP1	US 61/140,545	N/A	MODIFIED CYANOBACTERIA WITH REDUCED GLYCOGEN
M077-0004USP1	US 61/321,337	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS
M077-0004USP2	US 61/425,176	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS
M077-0005USP1	US 61/425,179	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS
M077-0006USP1	US 61/425,181	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS
M077-0006USP2	US 61/477,773	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS
M077-0006USP3	US 61/452,525	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS
M077-0006US	US 13/995,912	US20140004580	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS
M077-0008USP1	US 61/595,017	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR CONTINUOUS PRODUCTION OF CARBON-CONTAINING COMPOUNDS
M077-0008USP2	US 61/625,887	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR CONTINUOUS PRODUCTION OF CARBON-BASED COMPOUNDS
M077-0008US	US 14/376,387	US20150329868	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR CONTINUOUS PRODUCTION OF CARBON-BASED COMPOUNDS
M077-0009USP1	US 61/609,063	N/A	MODIFIED DIACYLGLYCEROL ACYLTRANSFERASE PROTEINS AND METHODS OF USE THEREOF
M077-0009US	US 14/383,853		MODIFIED DIACYLGLYCEROL ACYLTRANSFERASE PROTEINS AND METHODS OF USE THEREOF
M077-0011USP1	US 61/753,339	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR CONTINUOUS PRODUCTION OF CARBON-CONTAINING COMPOUNDS
M077-0012USP1	US 61/780,712	N/A	LIPID BODY PACKAGING PROTEINS IN CYANOBACTERIA
M077-0013USP1	US 61/780,755	N/A	CYANOBACTERIA HAVING IMPROVED PHOTOSYNTHETIC ACTIVITY
M077-0013US	US 14/775,606	US20160046902	CYANOBACTERIA HAVING IMPROVED PHOTOSYNTHETIC ACTIVITY
M077-0015USP1	US 62/063,865	N/A	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING CAROTENOID
M077-0017US	US 15/510,028	N/A	TARGETED MUTAGENESIS IN SPIRULINA
M077-0017USP1	US 62/047,811	N/A	TARGETED MUTAGENESIS IN SPIRULINA

File No.	Application no.	Publication no.	Title
M077-0015US	N/A	N/A	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC CAROTENOIDS
M077-0002AU	AU 2009308236	AU 2009308236	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC TRIGLYCERIDES
M077-0002EP	09741171.4	EP2358864	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC TRIGLYCERIDES
M077-0002IN	3710/DELNP/2011	N/A	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC TRIGLYCERIDES
M077-0002PCT	PCT/US2009/061936	WO2010048568	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC TRIGLYCERIDES
M077-0003AU	AU 2009330014	AU2009330014	MODIFIED MICROORGANISMS WITH REDUCED GLYCOGEN AND THEIR USE IN PRODUCING CARBON-BASED PRODUCTS
M077-0003EP	EP 09795664.3	EP2379706	MODIFIED MICROORGANISMS WITH REDUCED GLYCOGEN AND THEIR USE IN PRODUCING CARBON-BASED PRODUCTS
M077-0003GC	GC 2010/16141	N/A	MODIFIED MICROORGANISMS WITH REDUCED GLYCOGEN AND THEIR USE IN PRODUCING CARBON-BASED PRODUCTS
M077-0003IN	IN 5663/DELNP/2011	N/A	MODIFIED MICROORGANISMS WITH REDUCED GLYCOGEN AND THEIR USE IN PRODUCING CARBON-BASED PRODUCTS
M077-0004PCT	PCT/US2011/031273	WO2011127069	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC LIPIDS
M077-0005EP	EP 11804900.6	EP2655592A2	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC LIPIDS
M077-0005IN	IN 5262/DELNP/2013	N/A	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC LIPIDS
M077-0005PCT	PCT/US2011/065938	WO2012087982	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC LIPIDS
M077-0006EP	EP 11804899.0	EP2655605	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC LIPIDS
M077-0006IN	IN 5267/DELNP/2013	N/A	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC LIPIDS
M077-0006PCT	PCT/US2011/065896	WO2012087963	MODIFIED MICROORGANISMS FOR PRODUCING PHOTOSYNTHETIC LIPIDS
M077-0008EP	EP 13743122.7	EP2809790	MODIFIED MICROORGANISMS FOR CONTINUOUS PRODUCTION OF CARBON-BASED COMPOUNDS
M077-0008PCT	PCT/US2013/024142	WO2013116517	MODIFIED MICROORGANISMS FOR CONTINUOUS PRODUCTION OF CARBON-CONTAINING COMPOUND
M077-0009AU	AU 2013230485	AU2013230485	MODIFIED DIACYLGLYCEROL ACYLTRANSFERASE PROTEINS AND METHODS OF USE THEREOF
M077-0009EP	EP 13710244.8	EP2823042	MODIFIED DIACYLGLYCEROL ACYLTRANSFERASE PROTEINS AND METHODS OF USE THEREOF
M077-0009GC	GC 2013/23776	N/A	MODIFIED DIACYLGLYCEROL ACYLTRANSFERASE PROTEINS AND METHODS OF USE THEREOF



File No.	Application no.	Publication no.	Title
M077-0009IN	7385/DELNP/2014	N/A	MODIFIED DIACYLGLYCEROL ACYLTRANSFERASE PROTEINS AND METHODS OF USE THEREOF
M077-0009JP	JP 2014-560997	JP2015509533	MODIFIED DIACYLGLYCEROL ACYLTRANSFERASE PROTEINS AND METHODS OF USE THEREOF
M077-0009PCT	PCT/US2013/028900	WO2013134139	MODIFIED DIACYLGLYCEROL ACYLTRANSFERASE PROTEINS AND METHODS OF USE THEREOF
M077-0012PCT	PCT/US2014/021423	WO2014164232	LIPID BODY PACKAGING PROTEINS IN CYANOBACTERIA
M077-0013AU	2014249256	AU2014249256	CYANOBACTERIA HAVING IMPROVED PHOTOSYNTHETIC ACTIVITY
M077-0013IN	8221/DELNP/2015	N/A	CYANOBACTERIA HAVING IMPROVED PHOTOSYNTHETIC ACTIVITY
M077-0013PCT	PCT/US2014/022842	WO2014164566	CYANOBACTERIA HAVING IMPROVED PHOTOSYNTHETIC ACTIVITY
M077-0015PCT	PCT/US2015/055601	WO2016061275	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING CAROTENOIDS
M077-0017AU	2015315168	N/A	TARGETED MUTAGENESIS IN SPIRULINA
M077-0017CN	N/A	N/A	TARGETED MUTAGENESIS IN SPIRULINA
M077-0017EP	15767398.9	N/A	TARGETED MUTAGENESIS IN SPIRULINA
M077-0017IN	201717006682	N/A	TARGETED MUTAGENESIS IN SPIRULINA
M077-0017JP	2017-511896	N/A	TARGETED MUTAGENESIS IN SPIRULINA
M077-0017PCT	PCT/US15/49214	WO2016040499	TARGETED MUTAGENESIS IN SPIRULINA
M077-0002AU	AU 2009308236	AU 2009308236	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING TRIGLYCERIDES
M077-0002US	US 12/605,204	US 8,394,621	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING TRIGLYCERIDES
M077-0002USC1	US 12/794,536	US 8,394,614	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING TRIGLYCERIDES
M077-0002USC2	US 13/761,025	US 9,029,120	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING TRIGLYCERIDES
M077-0003JP	US 08/399,582	JP5670346	MODIFIED PHOTOSYNTHETIC MICROORGANISMS WITH REDUCED GLYCOGEN AND THEIR USE IN PRODUCING CARBON-BASED PRODUCTS
M077-0003US	US 12/645,228	US 8,835,137	MODIFIED PHOTOSYNTHETIC MICROORGANISMS WITH REDUCED GLYCOGEN AND THEIR USE IN PRODUCING CARBON-BASED PRODUCTS
M077-0004US	US 13/080,496	US 8,980,613	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS
M077-0005AU	AU 2011349463	AU 2011349463	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS
M077-0005US	US 13/995,925	US 9,523,096	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS

File No.	Application no.	Publication no.	Title
M077-0006AU	AU 2011349444	AU 2011349444	MODIFIED PHOTOSYNTHETIC MICROORGANISMS FOR PRODUCING LIPIDS