

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT3030847

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	SECURITY INTEREST

**CONVEYING PARTY DATA**

Name	Execution Date
MYRIANT CORPORATION	09/01/2014

**RECEIVING PARTY DATA**

<b>Name:</b>	PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED
<b>Street Address:</b>	555/1, ENERGY COMPLEX, BUILDING, 14TH-18TH FLOOR
<b>Internal Address:</b>	VIBHAVADI RANGSIT ROAD, CHATUCHAK
<b>City:</b>	BANGKOK
<b>State/Country:</b>	THAILAND
<b>Postal Code:</b>	10900

**PROPERTY NUMBERS Total: 35**

Property Type	Number
Application Number:	61281483
PCT Number:	US1057111
Application Number:	61281486
PCT Number:	US1057291
Application Number:	61281481
PCT Number:	US1057119
Application Number:	61342695
PCT Number:	US1132803
PCT Number:	US1145001
Application Number:	61400596
PCT Number:	US1146047
Application Number:	61402913
PCT Number:	US1150707
Application Number:	61459446
PCT Number:	US1164598
Application Number:	61497417
PCT Number:	US1230553
Application Number:	61514679
PCT Number:	US1249111
Application Number:	61573207

PATENT

Property Type	Number
PCT Number:	US1253543
Application Number:	61631268
PCT Number:	US1270902
Application Number:	61632277
PCT Number:	US1323690
Application Number:	61608053
PCT Number:	US1329368
Application Number:	61740230
Application Number:	61701293
PCT Number:	US1359828
Application Number:	61873328
Application Number:	61857300
PCT Number:	US1447696
Application Number:	61912578
Application Number:	61912580

#### CORRESPONDENCE DATA

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*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: jsbrown@mwe.com

Correspondent Name: G. MATTHEW MCCLOSKEY

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Address Line 2: 28 STATE STREET

Address Line 4: BOSTON, MASSACHUSETTS 02109-1775

ATTORNEY DOCKET NUMBER: 085089-0061

NAME OF SUBMITTER: G. MATTHEW MCCLOSKEY

SIGNATURE: /G. Matthew McCloskey/

DATE SIGNED: 09/19/2014

#### Total Attachments: 11

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**PATENT**

**REEL: 033781 FRAME: 0261**

## PATENT SECURITY AGREEMENT

This PATENT SECURITY AGREEMENT (this “Patent Security Agreement”) is made as of this 1st day of September, 2014, by the Debtor listed on the signature page hereof (the “Debtor”), in favor of PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED, a corporation organized under the laws of the Kingdom of Thailand as lender (the “Lender”), pursuant to that certain Term Loan and Security Agreement, dated as of September 1, 2014 (as amended, modified or supplemented from time to time, the “Loan Agreement”), between Myriant Corporation, a Delaware corporation formerly known as Myriant Technologies, Inc., and the Lender.

### WITNESSETH:

WHEREAS, pursuant to Section 4.8 of the Loan Agreement, Debtor is required to execute and deliver to the Lender this Patent Security Agreement.

NOW, THEREFORE, in consideration of the premises and mutual covenants herein contained and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Debtor hereby agrees as follows:

1. DEFINED TERMS. All capitalized terms used but not otherwise defined herein have the meanings given to them in the Loan Agreement.
2. GRANT OF SECURITY INTEREST IN PATENT COLLATERAL. Debtor hereby grants to the Lender a continuing first priority security interest in all of Debtor’s right, title and interest in, to and under the following, whether presently existing or hereafter created or acquired (collectively, the “Patent Collateral”):
  - (a) all of Debtor’s Patents and Patent Licenses to which it is a party including those referred to on Schedule I hereto;
  - (b) all reissues, continuations or extensions of the foregoing; and
  - (c) all products and proceeds of the foregoing, including, without limitation, any claim by Debtor against third parties for past, present or future infringement or dilution of any Patent or any Patent licensed under any Patent License.
3. SECURITY FOR SECURED OBLIGATIONS. This Patent Security Agreement and the security interest described hereby secures the payment and performance of all the Secured Obligations of Debtor, whether now existing or arising hereafter. Without limiting the generality of the foregoing, this Patent Security Agreement secures the payment of all amounts which constitute part of the Secured Obligations and would be owed by Debtor to the Lender but for the fact that they are unenforceable or not allowable due to the existence of an insolvency event involving Debtor.
4. LOAN AGREEMENT. The security interests granted pursuant to this Patent Security Agreement are granted as a supplement to, and not in limitation of, the security interests granted to the Lender pursuant to the Loan Agreement. Debtor hereby acknowledges and

affirms that the rights and remedies of the Lender with respect to the security interest in the Patent Collateral made and granted hereby are more fully set forth in the Loan Agreement, the terms and provisions of which are incorporated by reference herein as if fully set forth herein. This Patent Security Agreement has been executed and delivered by Debtor for the purpose of registering the security interest of the Lender in the Patent Collateral with the United States Patent and Trademark Office. In the event that any provisions of this Patent Security Agreement are in conflict with the Loan Agreement, the provisions of the Loan Agreement shall govern.

5. AUTHORIZATION TO SUPPLEMENT. If Debtor shall obtain rights to any new patentable inventions or become entitled to the benefit of any patent application or patent for any reissue, division or continuation of any patent, the provisions of this Patent Security Agreement shall automatically apply thereto. Debtor shall give prompt notice in writing to the Lender with respect to any such new patent rights. Without limiting Debtor's obligations under this Section 5, Debtor hereby authorizes the Lender to unilaterally modify this Patent Security Agreement by amending Schedule I to include any such new patent rights of Debtor. Notwithstanding the foregoing, no failure to so modify this Patent Security Agreement or amend Schedule I shall in any way affect, invalidate or detract from the Lender's continuing security interest in all Collateral, whether or not listed on Schedule I.

6. COUNTERPARTS. This Patent Security Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original, but all such separate counterparts shall together constitute but one and the same instrument. In proving this Patent Security Agreement in any judicial proceedings, it shall not be necessary to produce or account for more than one such counterpart signed by the party against whom such enforcement is sought. Any signatures delivered by a party by facsimile transmission or by e-mail transmission shall be deemed an original signature hereto.

7. GOVERNING LAW. By execution and delivery of this Patent Security Agreement, each party hereto generally and unconditionally (a) consents to nonexclusive personal jurisdiction in New York County, State of New York, (b) waives any objection as to jurisdiction or venue in New York County, State of New York, (c) agrees not to assert any defense based on lack of jurisdiction or venue in the aforesaid courts and (d) irrevocably agrees to be bound by any judgment rendered thereby in connection with this Patent Security Agreement.

8. RECORDATION. Borrower authorizes and requests that the United States Commissioner of Patents and Trademarks record this Patent Security Agreement.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, Debtor has caused this Patent Security Agreement to be executed and delivered by its duly authorized officer as of the date first set forth above.

**DEBTOR:**

MYRIANT CORPORATION

By: \_\_\_\_\_

Name: *Cenan Ozmeral*

Title: President and Chief Operating Officer

**LENDER:**

PTT GLOBAL CHEMICAL PUBLIC COMPANY  
LIMITED

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

IN WITNESS WHEREOF, Debtor has caused this Patent Security Agreement to be executed and delivered by its duly authorized officer as of the date first set forth above.

**DEBTOR:**

MYRIANT CORPORATION

By: \_\_\_\_\_

Name:

Title:

**LENDER:**

PTT GLOBAL CHEMICAL PUBLIC COMPANY  
LIMITED

By:  \_\_\_\_\_

Name: Bowon Vongsinudom

Title: President & CEO

**SCHEDULE I**  
**TO**  
**PATENT SECURITY AGREEMENT**

<b>A. Patent applications filed and registered in the name of Myriant Technologies LLC (n/k/a Myriant Corporation)</b>			
<b>Sr. No.</b>	<b>Title / Inventors / Attorney Docket No.</b>	<b>Filing Date / Application No.</b>	<b>Status</b>
1	<p>Metabolic evolution of <i>Escherichia coli</i> strains that produce organic acids.</p> <p><b><u>Inventors:</u></b> Tammy Grabar, Wei Gong, and Rogers Yocum</p> <p>MT2009-02PRO</p>	<p>Nov 18, 2009</p> <p>US Provisional Patent Application</p> <p>No. 61/281,483</p>	<p>Converted into a utility application on November 17, 2010.</p> <p>International Application Number: PCT/US10/57111.</p> <p>Same title as the original provisional application.</p> <p>MT2010-02PCT</p> <p>Entered into National Stage in AU, BR, CA, CN, EPO, ID, IN, JP, KR, MX, MY, PH, SG, TH, VN and US</p>
2	<p>Role of glyoxylate bypass pathway in Succinic acid production.</p> <p><b><u>Inventors:</u></b> Sudhanshu Dole and Rogers Yocum</p> <p>MT2009-03PRO</p>	<p>Nov 18, 2009</p> <p>US Provisional Patent Application</p> <p>No. 61/281,486</p>	<p>Converted into a utility application on November 18, 2010.</p> <p>International Application Number: PCT/US10/57291</p> <p>Title of the PCT Application:</p> <p>Organic acid production in microorganisms by combined reductive and oxidative tricarboxylic acid cycle pathways.</p> <p>MT2010-03PCT</p> <p>Entered into National Stage in</p>

			US
3	<p>Engineering bacteria for the maximum production of organic acids.</p> <p><b><u>Applicants (Inventors):</u></b> Wei Gong, Sudhanshu Dole, Tammy Grabar, Janice Pero, Rogers Yocum</p> <p>MT2009-04PRO</p>	<p>Nov 18, 2009</p> <p>US Provisional Patent Application</p> <p>No. 61/281,481</p>	<p>Converted into a utility application on November 17, 2010.</p> <p>International Application Number: PCT/US10/57119</p> <p>Title of the PCT Application: Engineering Microbes for Efficient Production of Chemicals.</p> <p>MT2010-04PCT</p> <p>Entered into National Stage in BR, CN, EPO, JP, KR, TH and US</p>
4	<p>Production of organic acids from xylose rich hydrolysate by bacterial fermentation.</p> <p><b><u>Inventors:</u></b> Tammy Grabar, William Houser</p> <p>MT2010-01PRO</p>	<p>April 16, 2010</p> <p>US Provisional Patent Application</p> <p>No. 61/342,695</p>	<p>Converted into an utility application on April 16, 2011.</p> <p>International Application Number: PCT/US11/32803</p> <p>Title of the PCT Application: Production of organic acids from xylose rich hydrolysate by bacterial fermentation.</p> <p>MT2011-01PCT</p> <p>Entered into National Stage in BR and US.</p>
5	<p>Fermentation of glycerol to organic acids</p>	<p>July 22, 2011</p> <p>PCT/US11/45001</p>	<p>Filed directly as a PCT Application. National stage entry in AU, BR, CA, CN, EPO, IN, JP, KR, TH, and US</p>
6	<p>Improved fermentation process for the production of organic acids.</p> <p><b><u>Inventors:</u></b> Theron Hermann,</p>	<p>July 30, 2010</p> <p>US provisional Patent</p>	<p>Converted into an utility application on July 30, 2011</p> <p>International Application</p>



	James Reinhardt, Xiaohui Yu, Russel Udani and Lauren Staples  MT2010-02PRO	Application No. 61/400,596	Number: PCT/US11/46047  Title of the PCT Application: Improved fermentation process for the production of organic acids.MT2011-02PCT  Entered into National Stage in CA and US.
7	Catalytic dehydration of lactic acid and lactic acid esters.  <b><u>Inventors:</u></b> Cenana Ozmeral, Joseph P. Glas, Rajesh Dasari, Tanielyan Setrak, Ramesh Deoram Bhagat and Mohan Reddy Kasireddy  MT2010-03PRO	September 7, 2010  US Provisional Patent Application  No. 61/402,913	Converted into an utility application on September 7, 2011.  International Application Number: PCT/US11/50707.  Title of the PCT Application: Catalytic dehydration of lactic acid and lactic acid esters  MC2011-04PCT  Entered into National Stage in BR, CN, EPO, IN, TH, and US.
7	Method of producing succinic acid and other chemicals using sucrose-containing feedstock.  <b><u>Inventors:</u></b> Sudhanshu Dole and Rogers Yocum  MT2010-04PRO	December 13, 2010  US Provisional Patent Application No.: 61/459,446	Converted into an utility application on December 13, 2011.  International Application Number: PCT/US11/64598  Title of the PCT Application: Method of producing succinic acid and other chemicals using sucrose-containing feedstock.  MT2011-05PCT  Entered into National Stage in BR, CN, EPO, IN, ID, MY, PH, SG, TH, VN, and US.

9	<p>Environmentally friendly coalescing agents.</p> <p><b><u>Inventors:</u></b> Michael Mang and Brain Turk</p> <p>MT2011-01PRO</p>	<p>June 15, 2011</p> <p>US provisional Patent Application No.: 61/497,417</p>	<p>International Application Number: PCT/US12/030553 filed in March 26, 2012</p> <p>Title of the PCT Application: Environmentally friendly coalescing agents.</p> <p>MC2012-01PCT</p> <p>Entered into National Stage in BR, CA, CN, CO, EPO, JP, KR, MX, MY, TH, VN, and US.</p>
10	<p>Degradable six pack ring and compositions and methods related to.</p> <p><b><u>Inventors:</u></b> Michael Mang, Steve Gatto and Cenar Ozmeral</p> <p>MT2011-02PRO</p>	<p>August 3, 2011</p> <p>US Provisional Patent Application No.: 61/514/679</p> <p><b>[NOTE: Myriant is not pursuing this application, it has effectively been abandoned]</b></p>	<p>International Application Number: PCT/US12/049111 filed on August 1, 2012</p> <p>Title of PCT Application: Degradable six pack ring and compositions and methods related to.</p> <p>MC2012-02PCT</p> <p>Entered into national stage in US.</p>
11	<p>Method for conversion of diammonium succinate in fermentation broth to 2-pyrrolidone and N-methylpyrrolidone.</p> <p><b><u>Inventor:</u></b> Tina Tosukhowang</p> <p>MT2011-03PRO</p>	<p>September 1, 2011</p> <p>US Provisional Patent Application No.: 61/573,207</p>	<p>International Application Number: PCT/US12/53543 filed on August 31, 2012</p> <p>Title of PCT Application: Method for conversion of diammonium succinate in fermentation broth to 2-pyrrolidone and N-methylpyrrolidone.</p> <p>MC2012-03PCT</p> <p>Entered National Stage in US.</p>

12	<p>Integrated Biorefinery</p> <p><b><u>Inventors:</u></b> Bin Wang and Ramnik Singh</p> <p>MT2011-04PRO</p>	<p>December 30, 2011</p> <p>US Provisional Patent Application No:</p> <p>61/631,268</p>	<p>International Application Number: PCT/US12/70902 filed on December 20, 2012</p> <p>Title of PCT Application: Integrated Biorefinery</p> <p>MC2012-04PCT</p> <p>Entered National Stage in BR, CN, ID, MY, TH, US and VN</p>
13	<p>Production of cis,cis-muconic acid from genetically engineered microorganisms</p> <p><b><u>Inventors:</u></b> Yocum, Gong, Dole, Sillers, Gandhi and Pero</p> <p>MC2012-01PRO</p>	<p>January 30, 2012</p> <p>US provisional Patent Application No.:</p> <p>61/632,277</p>	<p>International Application Number: PCT/US13/23690 filed on January 29, 2013</p> <p>Title of PCT Application: Production of cis,cis-muconic acid from genetically engineered microorganisms</p> <p>MC2013-01PCT</p> <p>Entered National Stage in BR, CA, CN, EPO, ID, JP, KR, MY, TH, US and VN</p>
14	<p>Preparation of alpha, beta-unsaturated carboxylic acids and esters thereof</p> <p>MC2012-02PRO</p>	<p>March 7, 2012</p> <p>US Provisional Patent Application No.</p> <p>61/608,053</p>	<p>International Application Number: PCT/US13/29368 filed on March 6, 2013</p> <p>Title of PCT Application: Preparation of alpha, beta-unsaturated carboxylic acids and esters thereof</p> <p>MC2013-02PCT</p> <p>Being entered into National Stage in BR, CA, CN, IN, JP, KR, TH and US</p>
15	<p>Preparation of alpha, beta – unsaturated carboxylic acids</p>	<p>December 20, 2012</p> <p>US Provision Patent</p>	<p>International Application Number: PCT/US13/29368</p>

	and ester thereof MC2012-04PRO	Application No. 61/740,230	filed on March 6, 2013  Title of PCT Application: Preparation of alpha, beta-unsaturated carboxylic acids and esters thereof  MC2013-02PCT
16	Production of organic acids by fermentation at low pH. MC2012-03PRO	September 14, 2012  US Provisional Patent Application No. 61/701,293	International Application Number: PCT/US13/59828 filed in September 13, 2013  Title of PCT Application: Production of organic acids by fermentation at low pH.  MC2013-03PCT
17	A process for manufacturing acrylic acid, acrylonitrile and 1,4-butanediol from 1,3-Propanediol. MC2013-02PRO	September 3, 2013  US Provisional Patent Application No. 61/873,328	On target for conversion into a utility application on or before September 3, 2014.  PCT Application to be filed on September 3, 2014.
18	Method of producing succinic acid and other chemicals using facilitated diffusion for sugar import MC2013-03PRO	July 23, 2013  US Provisional Patent Application No. 61/857,300	On target for conversion into a utility application on or before July 23, 2014.  PCT Application filed on July 22, 2014.  PCT/US14/47696.
19	A process for preparing succinate ester MC2013-01PRO	December 6, 2013  US Provisional Patent Application No. 61/912,578	On target for conversion into a utility application on or before December 6, 2014.
20	A process for preparing succinic acid and succinate ester	December 6, 2013  US Provisional Patent Application No.	On target for conversion into a utility application on or before December 6, 2014.

	MC2013-04PRO	61/912,580	
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- License Agreement with Gene Bridges dated October 3, 2008
- Technology License and Assistance Agreement by and between Myriant Corporation and Auria BioChemicals Co. Ltd. dated as of May 3, 2013, as amended by the First Amendment of the Technology License and Assistance Agreement dated as of October 22, 2013
- Second Amendment and Restatement of the License Agreement regarding Modified E. Coli Technology by and between Myriant Corporation and PURAC Biochem BV dated as of August 1, 2013