

TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

ETAS ID: TM515247

SUBMISSION TYPE:	NEW ASSIGNMENT		
NATURE OF CONVEYANCE:	SECURITY INTEREST		
CONVEYING PARTY DATA			
Name	Formerly	Execution Date	Entity Type
SYNTHETIC GENOMICS, INC.		03/07/2019	Corporation: DELAWARE
RECEIVING PARTY DATA			
Name:	OXFORD FINANCE LLC		
Street Address:	133 NORTH FAIRFAX STREET		
City:	ALEXANDRIA		
State/Country:	VIRGINIA		
Postal Code:	22314		
Entity Type:	Limited Liability Company: DELAWARE		
PROPERTY NUMBERS Total: 13			
Property Type	Number	Word Mark	
Serial Number:	85977312	GIBSON ASSEMBLY	
Registration Number:	3385070		
Registration Number:	3385057	SYNTHETIC GENOMICS	
Registration Number:	3385078		
Registration Number:	3385075	SYNTHETIC GENOMICS	
Serial Number:	85256811	SYNTHETIC GENOMICS VACCINES	
Registration Number:	4716677	X SGVI	
Registration Number:	4716678	X SGVI SYNTHETIC GENOMICS VACCINES, INC.	
Registration Number:	4202934	ARCHETYPE	
Registration Number:	4202935	ARCHETYPE	
Serial Number:	87545344	OSCELLA	
Serial Number:	87545355	OSCELLA	
Serial Number:	87890162	BIOXP	
CORRESPONDENCE DATA			
Fax Number:	4048853900		
<i>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.</i>			
Phone:	4048853868		
Email:	rusty.close@troutman.com		
TRADEMARK			

CH \$340.00 85977312

Correspondent Name: CHRISTOPHER CLOSE
Address Line 1: TROUTMAN SANDERS LLP
Address Line 2: 600 PEACHTREE STREET NE, SUITE 3000
Address Line 4: ATLANTA, GEORGIA 30308-2216

ATTORNEY DOCKET NUMBER: 030690.000077

NAME OF SUBMITTER: Christopher C Close, Jr.

SIGNATURE: /Christopher C. Close Jr./

DATE SIGNED: 03/20/2019

Total Attachments: 45

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INTELLECTUAL PROPERTY SECURITY AGREEMENT

This Intellectual Property Security Agreement is entered into as of March 7, 2019, by and among OXFORD FINANCE LLC, a Delaware limited liability company with an office located at 133 North Fairfax Street, Alexandria, Virginia 22314 (“**Oxford**”), as collateral agent for the Lenders listed on Schedule 1.1 of the Loan Agreement (as defined below) or otherwise a party thereto from time to time (in such capacity, “**Collateral Agent**”), and SYNTHETIC GENOMICS, INC., a Delaware corporation (“**Parent**”), GENOVIA BIO, LLC, a Delaware limited liability company, GREEN RESOURCES, LLC, a Maryland limited liability company, SGI-DNA, INC., a Delaware corporation, and SYNTHETIC GENOMICS VACCINES, INC., a Delaware corporation (including Parent, individually and collectively, jointly and severally, “**Borrower**”), each with offices located at 11149 North Torrey Pines Road, La Jolla, CA 92037 (including Parent, individually and collectively, jointly and severally, “**Grantor**”).

RECITALS

A. The Lenders agreed to make certain advances of money and to extend certain financial accommodations to Grantor (the “**Loans**”) in the amounts and manner set forth in that certain Loan and Security Agreement by and among the Collateral Agent, Lenders and Grantor dated as of July 31, 2017 (as amended, supplemented or otherwise modified from time to time, including, but without limitation, by that certain Forbearance Agreement, Consent and Third Amendment to Loan and Security Agreement dated as of March 7, 2019, the “**Loan Agreement**”; capitalized terms used but not otherwise defined herein shall have the meaning ascribed to such terms in the Loan Agreement). In accordance with the terms of the Loan Agreement, Grantor is granting to Collateral Agent, for the ratable benefit of the Lenders, a security interest in the Intellectual Property Collateral (as defined below) to secure the obligations of Grantor under the Loan Agreement.

B. Grantor has already granted to Collateral Agent, for the ratable benefit of the Lenders, a security interest in all of Grantor’s right, title and interest, whether presently existing or hereafter acquired, in, to and under all of the Collateral.

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, and intending to be legally bound, as collateral security for the prompt and complete payment when due of its obligations under the Loan Agreement, Grantor hereby represents, warrants, covenants and agrees as follows:

AGREEMENT

To secure its obligations under the Loan Agreement, effective as of the date hereof, Grantor hereby grants and pledges to Collateral Agent, for the ratable benefit of the Lenders, a security interest in all of Grantor’s right, title and interest in, to and under its intellectual property (all of which shall collectively be called the “**Intellectual Property Collateral**”), including, without limitation, the following:

(a) Any and all copyright rights, copyright applications, copyright registrations and like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret, now or hereafter existing, created, acquired or held, including without limitation those set forth on Exhibit A attached hereto (collectively, the “**Copyrights**”);

(b) Any and all trade secrets, and any and all intellectual property rights in computer software and computer software products now or hereafter existing, created, acquired or held;

(c) Any and all design rights that may be available to Grantor now or hereafter existing, created, acquired or held;

(d) All patents, patent applications and like protections including, without limitation, improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same, including without limitation the patents and patent applications set forth on Exhibit B attached hereto (collectively, the “**Patents**”);

(e) Any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Grantor connected with and symbolized by such trademarks, including without limitation those set forth on Exhibit C attached hereto (collectively, the “**Trademarks**”);

(f) All mask works or similar rights available for the protection of semiconductor chips, now owned or hereafter acquired, including, without limitation those set forth on Exhibit D attached hereto (collectively, the “**Mask Works**”);

(g) Any and all claims for damages by way of past, present and future infringements of any of the rights included above, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the intellectual property rights identified above;

(h) All licenses or other rights to use any of the Copyrights, Patents, Trademarks, or Mask Works and all license fees and royalties arising from such use to the extent permitted by such license or rights;

(i) All amendments, extensions, renewals and extensions of any of the Copyrights, Trademarks, Patents, or Mask Works; and

(j) All proceeds and products of the foregoing, including without limitation all payments under insurance or any indemnity or warranty payable in respect of any of the foregoing.

Notwithstanding the right to sue and collect granted in clause (g) above, Collateral Agent shall not exercise such right to sue and collect unless (i) an Event of Default has occurred and is continuing, or (ii) Grantor has failed to pursue such claim within ten (10) days of a determination by Grantor and Collateral Agent that the pursuit of such claim is necessary to preserve the value of, or prevent any further diminution of value to, the underlying Intellectual Property Collateral.

Grantor hereby represents and warrants that the Copyrights set forth on Exhibit A, the Patents set forth on Exhibit B and the Trademarks set forth on Exhibit C include all Copyrights, Patents and Trademarks of Grantor and its Subsidiaries that are either registered, or for which applications for registration or grant, as applicable, are pending, on the date hereof. Grantor hereby covenants to provide prompt notice of (A) any material change in the composition of the Intellectual Property, and (B) any new Copyrights, Trademarks, Patents, or Mask Works of Grantor or any of its Subsidiaries that are either registered or for which an application for registration or grant is filed.

This security interest is granted in conjunction with the security interest granted to Collateral Agent, for the ratable benefit of the Lenders under the Loan Agreement, and shall become effective upon the date hereof. The rights and remedies of Collateral Agent with respect to the security interest granted hereby are in addition to those set forth in the Loan Agreement and the other Loan Documents, and those which are now or hereafter available to Collateral Agent as a matter of law or equity. Each right, power and remedy of Collateral Agent provided for herein or in the Loan Agreement or any of the Loan Documents, or now

or hereafter existing at law or in equity shall be cumulative and concurrent and shall be in addition to every right, power or remedy provided for herein and the exercise by Collateral Agent of any one or more of the rights, powers or remedies provided for in this Intellectual Property Security Agreement, the Loan Agreement or any of the other Loan Documents, or now or hereafter existing at law or in equity, shall not preclude the simultaneous or later exercise by any person, including Collateral Agent, of any or all other rights, powers or remedies.

This Intellectual Property Security Agreement may be executed in several counterparts, each of which shall constitute an original and all of which, when taken together, shall constitute one agreement. The exchange of a fully executed Intellectual Property Security Agreement (in counterparts or otherwise) by electronic transmission in .PDF format or by facsimile shall be sufficient to bind the parties to the terms and conditions of this Intellectual Property Security Agreement.

[Signature page follows.]

IN WITNESS WHEREOF, the parties have caused this Intellectual Property Security Agreement to be duly executed by its officers thereunto duly authorized as of the first date written above.

GRANTOR:

Address of Grantor:

11149 North Torrey Pines Road
La Jolla, CA 92037
Attn:

SYNTHETIC GENOMICS, INC.

By: 

Title: CEO

Address of Grantor:

11149 North Torrey Pines Road
La Jolla, CA 92037
Attn:

GENOVIA BIO, LLC

By: 

Title: CEO of Synthetic Genomics, Inc.
Its: Sole member

Address of Grantor:

11149 North Torrey Pines Road
La Jolla, CA 92037
Attn:

GREEN RESOURCES, LLC

By: 

Title: CEO of Synthetic Genomics, Inc.
Its: Sole member

Address of Grantor:

11149 North Torrey Pines Road
La Jolla, CA 92037
Attn:

SYNTHETIC GENOMICS VACCINES, INC.

By: 

Title: CEO

Address of Grantor:

11149 North Torrey Pines Road
La Jolla, CA 92037
Attn:

SGI-DNA, INC.

By:



Title: CEO of Synthetic Genomics, Inc.
Its: Sole Stockholder

Address of Collateral Agent:

133 North Fairfax Street
Alexandria, Virginia 22314
Attn: Legal Department

COLLATERAL AGENT:

OXFORD FINANCE LLC, AS COLLATERAL AGENT

By:

Title:

Address of Grantor:

11149 North Torrey Pines Road
La Jolla, CA 92037

Attn:

SGI-DNA, INC.

By: _____

Title: _____

Address of Collateral Agent:

133 North Fairfax Street
Alexandria, Virginia 22314
Attn: Legal Department

COLLATERAL AGENT:

OXFORD FINANCE LLC, AS COLLATERAL
AGENT

By:  _____

Colette H. Featherly

Title: Senior Vice President

EXHIBIT A

Copyrights

Description

Registration/
Application
Number

Registration/
Application
Date

EXHIBIT B

Patents

**SGI IP Portfolio
February 2019**

UP=US Pending UI=US Issued
FP=Foreign Pending CV=Converted
NT=Nat'l Phase
FG=Foreign Granted EG=EP Granted

Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
AU		Systems and Methods for Anaerobic Environmental Microbial Compartmentalized Cultivation	Venter, J. Craig Mathur, Eric, J. Toledo, Gerardo V. Chang, Hwai, W. Green, Wayne A.	2008228722 03/21/08		2008228722 10/03/13
AU		Secretion of Fatty Acids by Photosynthetic Microorganisms	Roessler, Paul Chen, You Liu, Bo Dodge, Corey	2008335089 12/11/08		2008335089 10/09/14
AU	BP	Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	2009246493 05/12/09		2009246493 05/08/14
AU		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	2009324539 12/10/09		2009324539 01/14/16
AU		Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Clement, Brian G. Ferry, James G. Underwood, Stuart	2011261306 06/03/11		2011261306 09/01/16
AU	MSTO	Method for High-Throughput Identification of Microbial Antagonists against Pathogens	Kerovuo, Janne S. McCann, Ryan T.	2011323740 10/25/11		2011323740 04/07/16
AU	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christopher J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	2018200012 08/17/12	2018200012 01/25/18	
AU		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	2013214771 02/01/13	2013214771 08/08/13	2013214771 12/21/17
AU		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	2017272206 02/01/13		
AU		PEG-Mediated Assembly of Nucleic Acid Molecules	Qi, Zhiqing Urano, Jun Caiazza, Nicky C. Gibson, Daniel G.	2013359293 12/11/13		2013359293 02/15/18
AU		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	2013302376 08/16/13	2013302376 03/12/15	2013302376 06/07/18
AU		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	2018201085 08/16/13		
AU		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	2013317782 09/20/13		2013317782 01/19/17
AU		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	2015231000 03/20/15		2015231000 02/08/18
AU		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nelson, Robert D.	2013355001 12/06/13	2013355001 06/04/15	2013355001 02/08/18

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
AU		Regulatory Elements from Labyrinthulomycetes Microorganisms	Caiazza, Nicky C. Win, Maung N. Urano, Jun	2016226418 02/29/16		
AU		Compositions and Methods for High Efficiency In Vivo Genome Editing	Verruto, John H. Moellering, Eric R.	2015373893 12/31/15		
AU		Microorganisms for Fatty Acid Production Using Elongase and Desaturase Enzymes	Caiazza, Nicky Felhagle, Elizabeth Urano, Jun Win, Maung Nyan Radakovits, Randor R.	2016228545 03/11/16		
AU		Tamper-Resistant Assembly for Securing Valuable Material	Warden, Laurence Newman-Lehman, Tei Gibson, Daniel G.	2015252926 05/01/15		
AU		Lid Mechanism	Warden, Laurence Beaver, Scott Wayne Becker, Mark Henry	2015289674 07/15/15		
AU		Algal Mutants with Increased Lipid Productivity	Ajjawi, Imad Soriaga, Leah Aqui, Moena Moellering, Eric R.	2016349822 11/02/16		
AU		Microorganisms having Increased Lipid Productivity	Ajjawi, Imad Moellering, Eric R. Soriaga, Leah Aqui, Moena	2016293527 07/14/16		
AU		Algal Chloroplastic SRP54 Mutants	DiPetrillo, Christen McCarren, Jay Soriaga, Leah	2016249402 04/15/16		
AU		Protein Containing Material from Biomass and Methods of Production	Scholten, Johannes Lakshmanaswamy, A Burke, Joel Rutt, George C.	01/26/17		
AU		Production of Proteins in Labyrinthulomycetes	Caiazza, Nicky C. Urano, Jun Win, Maung N. Boles, Kent S.	2017235543 3/15/17		
AU	SGVI	Amplification and Cloning of Single DNA Molecules Using Rolling Circle Amplification	Hutchison, Clyde A. Smith, Hamilton O.	2006242387 05/01/06		2006242387 04/21/11
AU	SGVI	Minimal Bacterial Genome	Glass, John I. Smith, Hamilton O. Hutchison, Clyde A. Alperovich, Nina Y. Assad-Garcia, Nacyra	2013200532 10/12/06		2013200532 01/07/16
AU	SGVI	Synthesis of Error-Minimized Nucleic Acid Molecules	Young, Lei	2006320275 12/04/06		2006320275 09/20/12
AU	SGVI	Installation of Genomes or Partial Genomes into Cells or Cell-like Systems	Glass, John I. Young, Lei Lartigue, Carole Assad-Garcia, Nacyra Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig	2006346810 12/22/06		2006346810 08/15/13
AU	SGVI	Synthetic Genomes	Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O. Gibson, Daniel G.	2006347573 12/06/06	2006347573 02/28/08	2006347573 05/02/13
AU	SGVI	Assembly of Large Nucleic Acids	Gibson, Daniel G. Benders, Gwynedd A. Young, Lei Glass, John I. Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O.	2008311000 10/07/08	2008311000 04/16/09	2008311000 04/03/14

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
AU	SGVI	Methods of Genome Installation in a Recipient Host Cell	Lartigue, Carole Glass, John I. Alperovich, Nina Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig Merryman, Charles Vashee, Sanjay	2008254291 05/01/08	2008254291 11/27/08	2008254291 01/07/16
AU	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	2009214435 02/13/09		2009214435 08/21/14
AU	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	2010221172 03/05/10		2010221172 09/17/15
AU	SGVI	Encoding Text into Nucleic Acid Sequences	Hutchison, Clyde A. Montague, Michael G. Smith, Hamilton O.	2016210593 10/29/10		
AU		Microbial Fuel Cell	Bretschger, Orianna Wanger, Greg	2013259188 05/10/13		2013259188 06/14/18
AU	SGI	Method for Producing Polymers	Stähler, Peer F. Stähler, Cord F. Müller, Manfred	2000031570 02/18/00	767606 11/20/03	767606 03/04/04
AU		Recombinant Arterivirus Replicon Systems and Uses Thereof	Kamrud, Kurt Wang, Nathaniel S. Felderman, Martina Carrico, Nancy	2017249424 10/05/18		
BR		Secretion of Fatty Acids by Photosynthetic Microorganisms	Roessler, Paul Chen, You Liu, Bo Dodge, Corey	PI0821508 12/11/08		
BR	BP	Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	PI0912617 05/12/09		
BR	AGRD	Compositions of Volatile Organic Compounds and Methods of Use Thereof	Green, Wayne A. Strobel, Gary A.	PI1010302-3 04/02/10	PI1010302-3 06/27/17	
BR		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	PI0922735 12/10/09	PI0922735 06/13/17	
BR	MSTO	Method for High-Throughput Identification of Microbial Antagonists against Pathogens	Kerovuo, Janne S. McCann, Ryan T.	BR1120130097132 10/25/11		
BR	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christopher J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	BR112014003911-9 08/17/12	BR112014003911-9 03/14/17	
BR		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	112015006255-5 09/20/13	112015006255-5 08/22/17	

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
BR		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nielsen, Robert D.	BR112015013013-5 12/06/13	BR112015013013-5 09/12/17	
BR	SGVI	Amplification and Cloning of Single DNA Molecules Using Rolling Circle Amplification	Hutchison, Clyde A. Smith, Hamilton O.	PI0607661 05/01/06	PI0607661 11/09/06	PI0607661 08/08/17
BR	SGVI	Encoding Text into Nucleic Acid Sequences	Hutchison, Clyde A. Montague, Michael G. Smith, Hamilton O.	112012010535-3 10/29/10		
CA		Systems and Methods for Anaerobic Environmental Microbial Compartmentalized Cultivation	Venter, J. Craig Mathur, Eric, J. Toledo, Gerardo V. Chang, Hwai, W. Green, Wayne A.	2681648 03/21/08		2681648 05/12/15
CA	BP	Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	2724074 05/12/09		2724074 04/12/16
CA	AGRD	Compositions of Volatile Organic Compounds and Methods of Use Thereof	Green, Wayne A. Strobel, Gary A.	2757537 04/02/10	2757537 10/07/10	
CA		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	2746441 12/10/09		2746441 05/15/18
CA		Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Clement, Brian G. Ferry, James G. Underwood, Stuart	2801558 06/03/11		
CA	MSTO	Method for High-Throughput Identification of Microbial Antagonists against Pathogens	Kerovuo, Janne S. McCann, Ryan T.	2832308 10/25/11		
CA	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christopher J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	2844913 08/17/12	2844913 02/28/13	
CA		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	2862149 02/01/13		
CA		PEG-Mediated Assembly of Nucleic Acid Molecules	Qi, Zhiqing Urano, Jun Caiazza, Nicky C. Gibson, Daniel G.	2893817 12/11/13		
CA		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	2880687 08/16/13	2880687 02/20/14	
CA		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	2885662 09/20/13		
CA		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	2943348 03/20/15		

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
CA		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nielsen, Robert D.	2892821 12/06/13	2892821 06/12/14	
CA		Regulatory Elements from Labyrinthulomycetes Microorganisms	Caiazza, Nicky C. Win, Maung N. Urano, Jun	2977271 02/29/16		
CA		Compositions and Methods for High Efficiency In Vivo Genome Editing	Verruto, John H. Moellering, Eric R.	2972454 12/31/15		
CA		Microorganisms for Fatty Acid Production Using Elongase and Desaturase Enzymes	Caiazza, Nicky Felnagle, Elizabeth Urano, Jun Win, Maung Nyan Radakovits, Randor R.	2978770 03/11/16		
CA		Tamper-Resistant Assembly for Securing Valuable Material	Warden, Laurence Newman-Lehman, Tei Gibson, Daniel G.	2945810 05/01/15		
CA		Lid Mechanism	Warden, Laurence Beaver, Scott Wayne Becker, Mark Henry	2955188 07/15/15		
CA		Protein Rich Food Ingredient from Biomass and Methods of Manufacture	Rutt, George Clifford Flatt, James H. Domaille, Peter Toledo, Gerardo V.	2992860 01/25/16		
CA		Algal Chloroplasic SRP54 Mutants	DiPetrillo, Christen McCarren, Jay Soriaga, Leah	2982848 04/15/16		
CA		Protein Containing Material from Biomass and Methods of Production	Scholten, Johannes Lakshmanaswamy, A Burke, Joel Rutt, George C.	3011826 01/26/17		
CA		Production of Proteins in Labyrinthulomycetes	Caiazza, Nicky C. Urano, Jun Win, Maung N. Boles, Kent S.	03/15/17		
CA	SGVI	Amplification and Cloning of Single DNA Molecules Using Rolling Circle Amplification	Hutchison, Clyde A. Smith, Hamilton O.	2607532 05/01/06	2607532 11/09/06	2607532 03/12/13
CA	SGVI	In Vitro Recombination Method	Young, Lei Smith, Hamilton O. Gibson, Daniel G.	2618699 08/11/06	2618699 02/22/07	2618699 10/02/12
CA	SGVI	Method for In Vitro Recombination	Smith, Hamilton O. Gibson, Daniel G.	2618665 08/11/06	2618665 03/22/07	2618665 11/13/12
CA	SGVI	Synthesis of Error-Minimized Nucleic Acid Molecules	Young, Lei	2642514 12/04/06	2642514 06/07/07	2642514 06/07/11
CA	SGVI	Installation of Genomes or Partial Genomes into Cells or Cell-like Systems	Glass, John I. Young, Lei Lartigue, Carole Assad-Garcia, Nacyra Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig	2643136 12/22/06	2643136 02/07/08	2643136 04/18/17
CA	SGVI	Synthetic Genomes	Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O. Gibson, Daniel G.	2643356 12/06/06	2643356 02/28/08	

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
CA	SGVI	Assembly of Large Nucleic Acids	Gibson, Daniel G. Benders, Gwynedd A. Young, Lei Glass, John I. Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O.	2701923 10/07/08		
CA	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	2715586 02/13/09		2715586 08/28/2018
CA	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	2754212 03/05/10		2754212 08/02/16
CA	SGVI	Encoding Text into Nucleic Acid Sequences	Hutchison, Clyde A. Montague, Michael G. Smith, Hamilton O.	2779495 10/29/10		
CA		Crowding Agent-Induced Nucleic Acid Transfer into a Recipient Host Cell	Karas, Bogumil J. Hutchison, Clyde A. Smith, Hamilton O. Suzuki, Yo	2882661 08/30/13	2882661 03/06/14	
CA		Microbial Fuel Cell	Bretschger, Orianna Wanger, Greg	2872787 05/10/13		
CA	SGI	Method for Producing Polymers	Stähler, Peer F. Stähler, Cord F. Müller, Manfred	2362939 02/18/00		2362939 07/27/10
CA	SGI	Recombinant Arterivirus Replicon Systems and Uses Thereof	Kamrud, Kurt Wang, Nathaniel S. Felderman, Martina Carrico, Nancy	3020426 10/05/18		
CN		Secretion of Fatty Acids by Photosynthetic Microorganisms	Roessler, Paul Chen, You Liu, Bo Dodge, Corey	200880126568 12/11/08	101952452 01/19/11	101952452 07/09/14
CN	BP	Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	200980116909 05/12/09	102027195 04/20/11	102027195 05/14/14
CN		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	200980149831 12/10/09	102245780 11/16/11	ZL 200980149831.2 03/25/15
CN	MSTO	Method for High-Throughput Identification of Microbial Antagonists against Pathogens	Kerovuo, Janne S. McCann, Ryan T.	201180050598X 10/25/11	103180453 06/26/13	
CN	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christopher J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	2012800485980 08/17/12	103946393 07/23/14	
CN		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	2013800090317 02/01/13	104220602 12/17/14	

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
CN		PEG-Mediated Assembly of Nucleic Acid Molecules	Qi, Zhiqing Urano, Jun Caiazza, Nicky C. Gibson, Daniel G.	2013800613606 12/11/13	104822840 08/05/15	
CN		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	2013800536065 08/16/13	104755618A 07/01/15	
CN		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	201810115909X 08/16/13	CN 108285896 07/17/2018	
CN		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	2013800566380 09/20/13	104769122 A 07/08/15	
CN		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	201580021486X 03/20/15	106414753A 02/15/17	
CN		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nielsen, Robert D.	2013800636398 12/06/13	104837995 08/12/15	
CN		Compositions and Methods for Modulating Biomass Productivity	Ajjawi, Imad Aqui, Moena Soriaga, Leah	2014800607972 10/03/14	CN 105745324 A 07/06/16	
CN		Methods for Producing Dicarboxylic Acids	Griffin, Benjamin M. Kambourakis, Spiros	201480059791.3 11/20/14	CN105683386A 06/15/16	
CN		Biomass Productivity Regulator	Ajjawi, Imad Aqui, Moena Chavez-Torres, Carlos	2014800681580 12/30/14	CN105814190A 07/27/16	
CN		Microorganisms Engineered for Increased Productivity	Bauman, Nick Ajjawi, Imad	201680051363.5 09/02/16	CN 108138198A 06/08/18	
CN		Tamper-Resistant Assembly for Securing Valuable Material	Warden, Laurence Newman-Lehman, Tei Gibson, Daniel G.	2015800214889 05/01/15	CN 107027330 A 08/08/17	
CN		Lid Mechanism	Warden, Laurence Beaver, Scott Wayne Becker, Mark Henry	2015800382013 07/15/15	CN 106536371 A 03/22/17	
CN		Protein Rich Food Ingredient from Biomass and Methods of Manufacture	Rutt, George Clifford Flatt, James H. Domaille, Peter Toledo, Gerardo V.	201580045361.0 07/24/15	CN106572681A 04/19/17	
CN		Algal Mutants with Increased Lipid Productivity	Ajjawi, Imad Soriaga, Leah Aqui, Moena Moellering, Eric R.	2016800705122 11/02/16	CN 108368491 A 08/03/18	
CN		Microorganisms having Increased Lipid Productivity	Ajjawi, Imad Moellering, Eric R. Soriaga, Leah Aqui, Moena	201680052590X 07/14/16	CN 108026504 A 11. May 2018	
CN		Protein Containing Material from Biomass and Methods of Production	Scholten, Johannes Lakshmanaswamy, A Burke, Joel Rutt, George C.	2017800139548 01/26/17		
CN	SGVI	Amplification and Cloning of Single DNA Molecules Using Rolling Circle Amplification	Hutchison, Clyde A. Smith, Hamilton O.	200680024024 05/01/06	11213311 07/02/08	200680024024.4 02/13/13
CN	SGVI	Synthetic Genomes	Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O. Gibson, Daniel G.	2006800524443 12/06/06	101501207 08/05/09	ZL2006800524443 03/12/14

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
CN	SGVI	Methods of Genome Installation in a Recipient Host Cell	Lartigue, Carole Glass, John I. Alperovich, Nina Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig Merryman, Charles Vashee, Sanjay	2008800230576 05/01/08	101730741 06/09/10	ZL2008800230576 12/11/13
CN	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	201710235646.1 02/13/09	107384910A 11/24/17	
CN	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	201080020174 03/05/10	102421897 04/18/12	201080020174.4 12/16/15
CN	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	2013100112892 03/05/10	105274004A 01/27/16	
CN		Microbial Fuel Cell	Bretschger, Orianna Wanjer, Greg	2013800244103 05/10/13	104303354 01/21/15	
EA	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christopher J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	201490480 08/17/12	201490480 06/30/14	025208 11/30/16
EP		Systems and Methods for Anaerobic Environmental Microbial Compartmentalized Cultivation	Venter, J. Craig Mathur, Eric, J. Toledo, Gerardo V. Chang, Hwai, W. Green, Wayne A.	2008744213 03/21/08	2132301 12/16/09	2132301 05/29/13
EP		Secretion of Fatty Acids by Photosynthetic Microorganisms	Roessler, Paul Chen, You Liu, Bo Dodge, Corey	2008860168 12/11/08	2231864 09/29/10	2231864 05/24/17
EP	BP	Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	09747397 05/12/09	2294281 03/16/11	2294281 04/02/14
EP	AGRD	Compositions of Volatile Organic Compounds and Methods of Use Thereof	Green, Wayne A. Strobel, Gary A.	10712295.4 04/02/10	2413692 02/08/12	
EP		Microbial Production of Fatty Alcohols	Roessler, Paul G. Watts, Kevin Liu, Bo	10808723 08/11/10	2464722 06/20/12	2464722 10/04/17
EP		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	2009832579 12/10/09	2367949 09/28/11	2367949 09/27/17

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
EP		Acyl-ACP Thioesterase Genes and Uses Therefor	Roessler, Paul G. Lee-Roy, Gina	10800309.6 06/29/10	2448955 05/09/12	2448955 09/30/15
EP		Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Clement, Brian G. Ferry, James G. Underwood, Stuart	11790489 06/03/11	2576763 04/10/13	
EP	MSTO	Method for High-Throughput Identification of Microbial Antagonists against Pathogens	Kerovuo, Janne S. McCann, Ryan T.	11838546.7 10/25/11	2633064 09/04/13	2633064 08/01/18
EP	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christopher J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	12825942.1 08/17/12	2744920 6/25/14	
EP		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	13743710.9 02/01/13	2809795 12/10/14	
EP		PEG-Mediated Assembly of Nucleic Acid Molecules	Qi, Zhiqing Urano, Jun Caiazza, Nicky C. Gibson, Daniel G.	13863073.6 12/11/13	2931913 10/21/15	
EP		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	13829140.6 08/16/13	2885408 06/24/15 Re-Publ 04/20/16	
EP		Production and Secretion of Fatty Acids and Fatty Acid Derivatives	Holtzapple, Erik Brown, Robert C. Seshadri, Rekha Coppersmith, Jennifer Verruto, John	12835668 09/27/12	2761012 08/06/14	2761012 08/09/17
EP		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	138382353 09/20/13	2898083 07/29/15	
EP		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nielsen, Robert D. Schwartz, Ariel S.	13860017.6 12/06/13	2929029 10/14/15	2929029 07/25/18
EP		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nielsen, Robert D. Schwartz, Ariel S.	18178313.5 12/06/13		
EP		Compositions and Methods for Modulating Biomass Productivity	Ajjawi, Imad Aqui, Moena Soriaga, Leah	14851126.4 10/03/14	3052634 08/10/16	
EP		Methods for Producing Dicarboxylic Acids	Griffin, Benjamin M. Kambourakis, Spiros	14863233.4 11/20/14	3071699 09/28/16	

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
EP		Biomass Productivity Regulator	Ajjawi, Imad Aqui, Moena Chavez-Torres, Carlos	14876326.1 12/30/14	3090041 11/09/16	
EP		Microorganisms Engineered for Increased Productivity	Bauman, Nick Ajjawi, Imad	16843151.8 09/02/16	3344776 07/11/18	
EP		Regulatory Elements from Labyrinthulomycetes Microorganisms	Caiazza, Nicky C. Win, Maung N. Urano, Jun	16759329.2 02/29/16	3265567 01/10/18	
EP		Compositions and Methods for High Efficiency In Vivo Genome Editing	Verruto, John H. Moellering, Eric R.	15876386.2 12/31/15	3240889 11/08/17	
EP		Microorganisms for Fatty Acid Production Using Elongase and Desaturase Enzymes	Caiazza, Nicky Felnagle, Elizabeth Urano, Jun Win, Maung Nyan Radakovits, Randor R.	16762649.8 03/11/16	3268457 01/17/18	
EP		Tamper-Resistant Assembly for Securing Valuable Material	Warden, Laurence Newman-Lehman, Tei Gibson, Daniel G.	15786364.8 05/01/15	3138088 03/08/17	
EP		Lid Mechanism	Warden, Laurence Beaver, Scott Wayne Becker, Mark Henry	15821717.4 07/15/15	3169601 05/24/17	
EP		Protein Rich Food Ingredient from Biomass and Methods of Manufacture	Rutt, George Clifford Flatt, James H. Domaille, Peter Toledo, Gerardo V.	15825225.4 07/24/15	3171705 05/31/17	
EP		Algal Mutants with Increased Lipid Productivity	Ajjawi, Imad Soriaga, Leah Aqui, Moena Moellering, Eric R.	16862883.2 11/02/16	3371303 09/12/18	
EP		Microorganisms having Increased Lipid Productivity	Ajjawi, Imad Moellering, Eric R. Soriaga, Leah Aqui, Moena	16825216.1 07/14/16	3322799 05/23/18	
EP		Algal Chloroplasic SRP54 Mutants	DiPetrillo, Christen McCarren, Jay Soriaga, Leah	16780942.5 04/15/16	3283090 02/21/18	
EP		Protein Containing Material from Biomass and Methods of Production	Scholten, Johannes Lakshmanaswamy, Arun Burke, Joel Rutt, George C.	17744909.7 01/26/17		
EP		Production of Proteins in Labyrinthulomycetes	Caiazza, Nicky C. Urano, Jun Win, Maung N. Boles, Kent S.	17767446.2 03/15/17		
EP	SGVI	Amplification and Cloning of Single DNA Molecules Using Rolling Circle Amplification	Hutchison, Clyde A. Smith, Hamilton O.	2006751837 05/01/06	1885880 02/13/08	1885880 07/21/10
EP	SGVI	In Vitro Recombination Method	Young, Lei Smith, Hamilton O. Gibson, Daniel G.	2006813388 08/11/06	1915446 04/30/08	1915446 06/14/17
EP	SGVI	Method for In Vitro Recombination	Smith, Hamilton O. Gibson, Daniel G.	2006836102 08/11/06	1929012 06/11/08	1929012 10/06/10
EP		Method for In Vitro Recombination	Smith, Hamilton O. Gibson, Daniel G.	10168787 08/11/06	2239327 10/13/10	2239327 02/25/15
EP	SGVI	Minimal Bacterial Genome	Glass, John I. Smith, Hamilton O. Hutchison, Clyde A. Alperovich, Nina Y. Assad-Garcia, Nancyra	2006825527 10/12/06	1951874 08/06/08	
EP	SGVI	Synthesis of Error-Minimized Nucleic Acid Molecules	Young, Lei	2006844856 12/04/06	1963525 09/03/08	1963525 11/20/13

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Cty	Lee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
EP	SGVI	Installation of Genomes or Partial Genomes into Cells or Cell-like Systems	Glass, John I. Young, Lei Lartigue, Carole Assad-Garcia, Nacyra Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig	2006851502 12/22/06	1963515 09/03/08	1963515 05/28/14
EP	SGVI	Synthetic Genomes	Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O. Gibson, Daniel G.	2006851474 12/06/06	1968994 09/17/08	1968994 07/03/13
EP		Recombinant Hydrogen-Producing Cyanobacterium and Uses Thereof	Xu, Qing Smith, Hamilton O.	07874083 10/16/07	2076586 07/08/09	2076586 09/24/14
EP	SGVI	Assembly of Large Nucleic Acids	Gibson, Daniel G. Benders, Gwynedd A. Young, Lei Glass, John I. Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O.	2008838436 10/07/08	2207899 07/21/10	2207899 04/18/18
EP	SGVI	Methods of Genome Installation in a Recipient Host Cell	Lartigue, Carole Glass, John I. Alperovich, Nina Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig Merryman, Charles Vashee, Sanjay	2008754990 05/01/08	2147099 01/27/10	2147099 08/08/18
EP	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	09711127 02/13/09	2255013 12/01/10	2255013 06/08/16
EP	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	16165528.7 02/13/09	3064599 09/07/16	
EP	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkell A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	10708854 03/05/10	2403944 01/11/12	2403944 06/28/17
EP	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkell A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	17177614.9 03/05/10	3249045 11/29/17	
EP	SGVI	Encoding Text into Nucleic Acid Sequences	Hutchison, Clyde A. Montague, Michael G. Smith, Hamilton O.	10827576 10/29/10	2494060 09/05/12	2494060 04/27/16

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
EP		Crowding Agent-Induced Nucleic Acid Transfer into a Recipient Host Cell	Karas, Bogumil J. Hutchison, Clyde A. Smith, Hamilton O. Suzuki, Yo	130833688 08/30/13	2890787 07/08/15	
EP		Microbial Fuel Cell	Bretschger, Orianna Wanqer, Greg	13788247.8 05/10/13	2847818 03/18/15	
EP	SGI	Method for Producing Polymers	Stähler, Peer F. Stähler, Cord F. Müller, Manfred	00909211 02/18/00	1153127 11/14/01	1153127 07/26/06
EP	SGI	Method for Producing Polymers	Stähler, Peer F. Stähler, Cord F. Müller, Manfred	06014767 02/18/00	1728860 12/06/06	1728860 01/27/10
EP	SGI	Method for Producing Polymers	Stähler, Peer F. Stähler, Cord F. Müller, Manfred	10151688 02/18/00	2175021 11/30/11	2175021 06/19/13
EP	SGI	Highly Parallel DNA Synthesizer Based on Matrices	Stähler, Peer F. Stähler, Cord F. Beier, Markus	04803181 11/18/04	1685261 08/02/06	1685261 03/25/15
EP	SGI	Synthesis of Sequence-Verified Nucleic Acids	Stähler, Peer F. Carapito, Raphael Stähler, Cord F. Matzas, Mark Leonard, Jack T. Jaeger, Joachim Beier, Markus	10705856 02/19/10	2398915 12/21/11	2398915 08/24/16
EP	SGI	Programmable Oligonucleotide Synthesis	Stähler, Peer F. Carapito, Raphael	07801845 08/23/07	2057176 05/13/09	2057176 10/16/13
EP	SGI	Programmable Oligonucleotide Synthesis	Stähler, Peer F. Carapito, Raphael	12163204 08/23/07	2489671 08/22/12	2489671 03/25/15
EP	SGI	Recombinant Arterivirus Replicon Systems and Uses Thereof	Kamrud, Kurt Wang, Nathaniel S. Felderman, Martina Carrico, Nancy	17718781.2 10/11/18	3443107 02/20/19	
HK	SGVI	Amplification and Cloning of Single DNA Molecules Using Rolling Circle Amplification	Hutchison, Clyde A. Smith, Hamilton O.	08107959 05/01/06	1112490 09/05/08	1112490 04/21/11
ID	AGRD	Compositions of Volatile Organic Compounds and Methods of Use Thereof	Green, Wayne A. Strobel, Gary A.	W-00201104036 04/02/10		IDP000045431 04/18/17
ID		Methods for Producing Dicarboxylic Acids	Griffin, Benjamin M. Kambourakis, Spiros	P-00201603618 11/20/14	2017/09436 09/01/17	
IL		Systems and Methods for Anaerobic Environmental Microbial Compartmentalized Cultivation	Venter, J. Craig Mathur, Eric, J. Toledo, Gerardo V. Chang, Hwai, W. Green, Wayne A.	201067 03/21/08	201067 03/24/13	201067 06/25/13
IL		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	213406 12/10/09		213406 03/01/18
IL		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	233687 02/01/13		
IL		PEG-Mediated Assembly of Nucleic Acid Molecules	Qi, Zhiqing Urano, Jun Caiazza, Nicky C. Gibson, Daniel G.	238918 12/11/13		
IL		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	236966 08/16/13		

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Cty	Lee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
IL		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nielsen, Robert D.	238721 12/06/13		
IL		Compositions and Methods for High Efficiency In Vivo Genome Editing	Verruto, John H. Moellering, Eric R.	252970 12/31/15		
IL	SGVI	Amplification and Cloning of Single DNA Molecules Using Rolling Circle Amplification	Hutchison, Clyde A. Smith, Hamilton O.	187002 05/01/06	187002 03/29/12	187002 06/30/12
IL	SGVI	Synthetic Genomes	Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O. Gibson, Daniel G.	192041 12/06/06	192041 12/29/08	192041 11/30/13
IL	SGVI	Assembly of Large Nucleic Acids	Gibson, Daniel G. Benders, Gwynedd A. Young, Lei Glass, John I. Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O.	204892 10/07/08		204892 05/29/18
IL	SGVI	Methods of Genome Installation in a Recipient Host Cell	Lartigue, Carole Glass, John I. Alperovich, Nina Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig Merryman, Charles Vashee, Sanjay	201835 05/01/08	201835 07/31/13	201835 11/01/13
IL	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	207572 02/13/09	207572 04/30/17	207572 07/31/17
IL	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	251161 02/13/09		
IL	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	214828 03/05/10	214828 01/31/16	214828 05/01/16

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
IL	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	242303 03/05/10	242303 06/29/17	242303 09/30/17
IL		Microbial Fuel Cell	Bretschger, Orianna Wanger, Greg	235125 05/10/13		
IN		Secretion of Fatty Acids by Photosynthetic Microorganisms	Roessler, Paul Chen, You Liu, Bo Dodge, Corey	4004/CHENP/2010 12/11/08		
IN	BP	Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	7258/CHENP/2010 05/12/09		298011 06/25/18
IN	MSTO	Method for High-Throughput Identification of Microbial Antagonists against Pathogens	Kerovuo, Janne S. McCann, Ryan T.	4032/CHENP/2013 10/25/11	4032/CHENP/2013 07/18/14	
IN	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christopher J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	2046/CHENP/2014 08/17/12	2046/CHENP/2014 07/01/16	
IN		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	5816/CHENP/2014 02/01/13	5816/CHENP/2014 07/01/16	
IN		PEG-Mediated Assembly of Nucleic Acid Molecules	Qi, Zhiqing Urano, Jun Caiazza, Nicky C. Gibson, Daniel G.	3633/CHENP/2015 12/11/13	3633/CHENP/2015 07/01/16	
IN		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	1350/CHENP/2015 08/16/13		
IN		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	1974/CHENP/2015 09/20/13	1974/CHENP/2015 07/01/16	
IN		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	201647034619 03/20/15	201647034619 11/25/16	
IN		Protein Containing Material from Biomass and Methods of Production	Scholten, Johannes Lakshmanaswamy, A Burke, Joel Rutt, George C.	01/26/17		
IN	SGVI	Amplification and Cloning of Single DNA Molecules Using Rolling Circle Amplification	Hutchison, Clyde A. Smith, Hamilton O.	8526/DELNP/2007 05/01/06		262638 09/01/14
IN	SGVI	Synthetic Genomes	Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O. Gibson, Daniel G.	2702/KOLNP/2008 12/06/06		292756 02/09/18

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
IN	SGVI	Assembly of Large Nucleic Acids	Gibson, Daniel G. Benders, Gwynedd A. Young, Lei Glass, John I. Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O.	2477/DELNP/2010 10/07/08	2477/DELNP/2010 10/01/10	283647 05/26/17
IN	SGVI	Methods of Genome Installation in a Recipient Host Cell	Lartigue, Carole Glass, John I. Alperovich, Nina Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig Merryman, Charles Vashee, Sanjay	4101/KOLNP/2009 05/01/08		300249 08/24/2018
IN	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	5196/CHENP/2010 02/13/09	5196/CHENP/2010 12/03/10	289454 11/10/17
IN	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	201748037979 02/13/09		
IN	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	7211/CHENP/2011 03/05/10		
JP		Systems and Methods for Anaerobic Environmental Microbial Compartmentalized Cultivation	Venter, J. Craig Mathur, Eric, J. Toledo, Gerardo V. Chang, Hwai, W. Green, Wayne A.	2009-554782 03/21/08	2010-522334 07/01/10	5936808 05/20/16
JP		Secretion of Fatty Acids by Photosynthetic Microorganisms	Roessler, Paul Chen, You Liu, Bo Dodge, Corey	2010538169 12/11/08	2011505838 03/03/11	5465183 01/31/14
JP	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christopher J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	2014-526260 08/17/12	2014-526260 10/09/14	6230125 10/27/17
JP		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	2017-245919 02/01/13	2018-068311 05/10/18	
JP		PEG-Mediated Assembly of Nucleic Acid Molecules	Qi, Zhiqing Urano, Jun Caiazza, Nicky C. Gibson, Daniel G.	2015-175502 12/11/13		
JP		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	2015-527674 08/16/13	2015-532643 11/12/15	
JP		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	2015-533235 09/20/13	2015-536641 12/24/15	6163557 06/23/17

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JP		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	2017-091072 9/20/13	2017-195885 11/2/17	
JP		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	2018-055638 09/20/13		
JP		Compositions and Methods for High Efficiency In Vivo Genome Editing	Verruto, John H. Moellering, Eric R.	2017-534947 12/31/15	2018-500037 01/11/18	
JP		Protein Rich Food Ingredient from Biomass and Methods of Manufacture	Rutt, George Clifford Flatt, James H. Domaille, Peter Toledo, Gerardo V.	2017-504026 07/24/15	2017-522883 08/17/17	
JP		Protein Containing Material from Biomass and Methods of Production	Scholten, Johannes Lakshmanaswamy, Arun Burke, Joel Rutt, George C.	2018-539156 01/26/17		
JP	SGVI	Synthesis of Error-Minimized Nucleic Acid Molecules	Young, Lei	2008543550 12/04/06	2009/518013 05/07/09	4789271 07/29/11
JP	SGVI	Installation of Genomes or Partial Genomes into Cells or Cell-like Systems	Glass, John I. Young, Lei Lartigue, Carole Assad-Garcia, Nacyra Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig	2008547655 12/22/06	2009/521229 06/04/09	
JP	SGVI	Synthetic Genomes	Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O. Gibson, Daniel G.	2008544524 12/06/06	2009/518038 05/07/09	5106412 10/12/12
JP	SGVI	Assembly of Large Nucleic Acids	Gibson, Daniel G. Benders, Gwynedd A. Young, Lei Glass, John I. Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O.	2010528976 10/07/08	2010539994 12/24/10	5618413 09/26/14
JP	SGVI	Methods of Genome Installation in a Recipient Host Cell	Lartigue, Carole Glass, John I. Alperovich, Nina Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig Merryman, Charles Vashee, Sonjay	2010506659 05/01/08	2011519263 07/07/11	5637846 10/31/14
JP	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	2010-546942 02/13/09	2011512140 04/21/11	5725540 04/10/15
JP	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	2015-007054 02/13/09	2015-109852 06/18/15	6165789 06/30/17

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JP	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	2011553154 03/05/10	2012519493 08/30/12	5713925 03/20/15
JP	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	2015-047192 03/05/10	2015-128444 7/16/15	
JP	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	2017-105163 03/05/10	2017-140055 08/17/17	
JP	SGI	Recombinant Arterivirus Replicon Systems and Uses Thereof	Kamrud, Kurt Wang, Nathaniel S. Felderman, Martina Carrico, Nancy	2018-553420 10/11/18		
MX		Systems and Methods for Anaerobic Environmental Microbial Compartmentalized Cultivation	Venter, J. Craig Mathur, Eric, J. Toledo, Gerardo V. Chang, Hwai, W. Green, Wayne A.	MX/a/2009/010108 03/21/08		302260 08/10/12
MX	AGRD	Compositions of Volatile Organic Compounds and Methods of Use Thereof	Green, Wayne A. Strobel, Gary A.	MX/a/2011/010420 04/02/10	MX/a/2011/010420 12/16/11	
MX		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	MX/a/2011/006301 12/10/09	MX/a/2011/006301 10/24/11	307272 02/08/13
MX	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christophe J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	MX/a/2014/002027 08/17/12	MX/a/2014/002027 11/10/14	

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MX		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nielson, Robert D.	MX/a/2015/007262 12/06/13	MX/a/2015/007262 07/18/16	
MX		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nielson, Robert D.	MX/a/2018/010636 12/06/13	MX/a/2015/007262 07/18/16	
MX		Protein Rich Food Ingredient from Biomass and Methods of Manufacture	Rutt, George Clifford Flatt, James H. Domaille, Peter Toledo, Gerardo V.	MX/a/2017/001180 07/24/15		
MX		Protein Rich Food Ingredient from Biomass and Methods of Manufacture	Rutt, George Clifford Flatt, James H. Domaille, Peter Toledo, Gerardo V.	MX/a/2018/000941 01/25/16		
MY		Systems and Methods for Anaerobic Environmental Microbial Compartmentalized Cultivation	Venter, J. Craig Mathur, Eric, J. Toledo, Gerardo V. Chang, Hwai, W. Green, Wayne A.	PI20093917 03/21/08		MY-150704-A 02/28/14
MY		Secretion of Fatty Acids by Photosynthetic Microorganisms	Roessler, Paul Chen, You Liu, Bo Dodge, Corey	PI2010002698 12/11/08		MY-154028 04/30/15
MY	AGRD	Compositions of Volatile Organic Compounds and Methods of Use Thereof	Green, Wayne A. Strobel, Gary A.	PI 2011004741 04/02/10		MY-158356-A 09/30/16
MY		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	PI2015700896 09/20/13		
MY		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	PI 2016703389 03/20/15		
MY		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nielson, Robert D.	PI2015701797 12/06/13		
MY		Methods for Producing Dicarboxylic Acids	Griffin, Benjamin M. Kambourakis, Spiros	PI 2016701611 11/20/14		
MY	SGVI	In Vitro Recombination Method	Young, Lei Smith, Hamilton O. Gibson, Daniel G.	PI20063912 08/11/06		MY-143596 06/15/11
MY	SGVI	Method for In Vitro Recombination	Smith, Hamilton O. Gibson, Daniel G.	PI20063911 08/11/06		MY-144014-A 07/29/11

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
MY	SGVI	Assembly of Large Nucleic Acids	Gibson, Daniel G. Benders, Gwynedd A. Young, Lei Glass, John I. Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O.	PI 2010001512 10/07/08		MY-161418-A 04/14/17
PCT		Methods for Assembling DNA Molecules	Gill, John E. Gibson, Daniel G. Fu, Lixia	PCT/US17/65877 12/12/17	2018/111914 06/21/18	
PCT		Genetically Engineered Vibrio Sp. and Uses Thereof	Weinstock, Matthew T Wilson, Christopher M.	PCT/US17/48743 08/25/17	2018/039639 03/01/18	
PCT		Expression of Modified Glycoproteins and Glycopeptides	Caiazza, Nicky C.	PCT/US17/59304 10/31/17	2018/085273 05/11/18	
PCT		Expression of Modified Glycoproteins and Glycopeptides	Caiazza, Nicky C.	PCT/US18/30235 04/30/18		
PCT		High Productivity Algal Mutants having Reduced Photosynthetic Antenna	Moellering, Eric R. Bauman, Nicholas Radakovits, Randor R. Spreafico, Roberto Kuzminov, Fedor Ajjawi, Imad Imam, Saheed Schultz, Andrew Kwok, Kathleen Aqui, Moena Nominati, Jennifer Verruto, John H. Bailey, Shaun	PCT/US17/69073 12/29/17	2018/126201 07/05/18	
PCT		Polypeptides with Type V CRISPR Activity and Uses Thereof	Monds, Russell D. Mantovani, Simone M. Komor, Russell, S. LaFave, Matthew C. Kannan, Krishna LaMattina, Joseph W. Lucas, Joseph S. Moellering, Eric R.	PCT/US18/27650 04/13/18		
PCT		Vibrio Sp. Organisms with Modified Lipopolysaccharide	Weinstock, Matthew T Gibson, Daniel G. Strimling, Daniel	PCT/US2018/54883 10/08/18		
PCT		Compositions, Systems, Kits, and Methods for Modifying RNA	Mantovani, Simone M. Monds, Russell D. LaFave, Matthew C. Brown, Robert C.	PCT/US2018/60831 11/13/18		
PCT		Photobioreactor for Contained Microorganism Cultivation	Olaizola, Miguel Davenport, Jason Coard, Julie Perez, Xavier Brown, Louis R. Brown, Robert C.	PCT/US18/63920 12/04/18		
PCT	SGI	Recombinant Arterivirus Replicon Systems and Uses Thereof	Kamrud, Kurt Wang, Nathaniel S. Felderman, Martina Carrico, Nancy	PCT/US17/27249 04/12/17	2017/180770 10/19/17	
PCT	SGI	Recombinant Virus Replicon Systems and Uses Thereof	Kamrud, Kurt I.	PCT/US17/54928 10/03/17	2018/075235 04/26/18	
PCT	SGI	Compositions and Methods for Enhancing Gene Expression	Kamrud, Kurt I. Win, Maung N. Wang, Nathaniel S. DeHart, Jason L.	PCT/US17/64561 12/04/17	2018/106615 06/14/18	

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PCT	SGI	Induce and Enhance Immune Responses using Recombinant Replicon Systems	Kamrud, Kurt I. Wang, Nathaniel S. Aliahmad, Parinaz DeHart, Jason L.	PCT/US2019/14210 01/18/19		
PL	BP	Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	P.393466 05/12/09		220307 11/24/14
RU	BP	Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	2010150769 05/12/09	2010150769 06/20/12	2488636 07/27/13
RU	MSTO	Method for High-Throughput Identification of Microbial Antagonists against Pathogens	Kerovuoto, Janne S. McCann, Ryan T.	2013123987 10/25/11	2013123987 12/10/14	2618873 05/11/17
SG		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	10201606285Y 02/01/13		
SG		PEG-Mediated Assembly of Nucleic Acid Molecules	Qi, Zhiqing Urano, Jun Caiazza, Nicky C. Gibson, Daniel G.	10201704426U 12/11/13		
SG		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	10201701022V 08/16/13		10201701022V 09/26/2018
SG		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	10201701022V 08/16/13		10201701022V 09/26/2018
SG		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	11201502143V 09/20/13	11201502143V 04/29/15	11201502143V 01/12/18
SG		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	10201702263Q 09/20/13	10201702263Q 05/30/17	10201702263Q 11/16/17
SG		Methods for Producing Dicarboxylic Acids	Griffin, Benjamin M. Kambourakis, Spiros	11201603078V 11/20/14	11201603078V 05/30/16	
SG		Compositions and Methods for High Efficiency In Vivo Genome Editing	Verruto, John H. Moellering, Eric R.	11201704272Y 12/31/15	11201704272Y 06/29/17	
SG	SGVI	Assembly of Large Nucleic Acids	Gibson, Daniel G. Benders, Gwynedd A. Young, Lei Glass, John I. Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O.	2012089785 10/07/08	186628 01/30/13	186628 06/07/16
SG	SGVI	Methods of Genome Installation in a Recipient Host Cell	Lartigue, Carole Glass, John I. Alperovich, Nina Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig Merryman, Charles Vachee, Sonya	200907187 05/01/08	156476 12/29/09	156476 05/15/12
SG	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	201300777-8 02/13/09	188101 03/28/13	188101 03/12/18

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
SG	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	10201800778Q 02/13/09		
SG	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	201106298 03/05/10	174197 10/28/11	
SG	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	10201400436P 03/05/10	10201400436P 06/27/14	10201400436P 06/15/17
SG	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	10201704868R 03/05/10		
SG		Microbial Fuel Cell	Bretschger, Orianna Wanger, Greg	10201609434X 05/10/13		
TH	AGRD	Compositions of Volatile Organic Compounds and Methods of Use Thereof	Green, Wayne A. Strobel, Gary A.	1101002485 04/02/10		
TW	SGVI	Installation of Genomes or Partial Genomes into Cells or Cell-like Systems	Glass, John I. Young, Lei Lartigue, Carole Assad-Garcia, Nacyra Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig	095148784 12/22/06		I472619 02/11/15
UA	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christopher J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	a 2014 02722 08/17/12		
US		Systems and Methods for Anaerobic Environmental Microbial Compartmentalized Cultivation	Venter, J. Craig Mathur, Eric, J. Toledo, Gerardo V. Chang, Hwai, W. Green, Wayne A.	12/532403 09/21/09	371 2010/0330651 12/30/10	9556413 01/31/17

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US		Dimethyloctane as an Advanced Biofuel	Picataggio, Stephen Watts, Kevin Martin, Kevin Verruto, John Roessler, Paul	12/742906 05/13/10 371	2011/0160501 06/30/11	8309323 11/13/12
US		Methylbutanol as an Advanced Biofuel	Picataggio, Stephen Brown, Robert C. Kristof, Jessica R. Lee, Gena Prakash, Prachee Underwood, Stuart A. Watts, Kevin Martin, Kevin V.	12/332305 12/10/08	2009/0288337 11/26/09	8114641 02/14/12
US		Methylbutanol as an Advanced Biofuel	Picataggio, Stephen Brown, Robert C. Kristof, Jessica R. Roy, Gena Prakash, Prachee Underwood, Stuart A. Watts, Kevin Martin, Kevin V.	13/305414 11/28/11	2014/0322780 10/30/14	9080188 07/14/15
US		Secretion of Fatty Acids by Photosynthetic Microorganisms	Roessler, Paul Chen, You Liu, Bo Dodge, Corey	12/333280 12/11/08	2009/0298143 12/03/09	
US		Secretion of Fatty Acids by Photosynthetic Microorganisms	Roessler, Paul Chen, You Liu, Bo Dodge, Corey	13/340350 12/29/11	2013/0005003 01/03/13	
US		Identification of Centromere Sequences and Uses Therefor	Zieler, Helge Brown, Robert Richardson, Toby Smith, Douglas	12/431701 04/28/09	2010/0041035 02/18/10	9758810 09/12/17
US	BP	Methods of Identifying Stimulants for Biogenic Methane Production from Hydrocarbon-Bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	12/464832 05/12/09	2010/0047793 02/25/10	7977056 07/12/11
US	BP	Methods of Identifying Stimulants for Biogenic Methane Production from Hydrocarbon-Bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	13/177429 07/06/11	2011/0277991 11/17/11	8448702 05/28/13
US	AGRD	Compositions of Volatile Organic Compounds and Methods of Use Thereof	Green, Wayne A. Strobel, Gary A.	12/753714 04/02/10	2010/0255124 10/07/10	8425946 04/23/13
US	AGRD	Compositions of Volatile Organic Compounds and Methods of Use Thereof	Green, Wayne A. Strobel, Gary A.	13/859645 04/02/10	2013/0224315 08/29/13	8968798 03/03/15
US		Microbial Production of Fatty Alcohols	Roessler, Paul Watts, Kevin Liu, Bo	12/854848 08/11/10	2011/0195469 08/11/11	8633002 01/21/14
US		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	12/635653 12/10/09	2010/0151545 06/17/10	8124400 02/28/12
US		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	13/338579 12/28/11	2012/0094362 04/19/12	8445257 05/21/13
US		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	13/898754 05/21/13	2013/0316415 11/28/13	9181558 11/10/15
US		Acyl-ACP Thioesterase Genes and Uses Therefor	Roessler, Paul G. Roy, Gina	12/826592 06/29/10	2011/0020883 01/27/11	8956834 02/17/15

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Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
US		Acyl-ACP Thioesterase Genes and Uses Therefor	Roessler, Paul G. Roy, Gina	14/608847 01/29/15	2015/0147790 05/28/15	9920340 03/20/18
US	BP	Mass Spectrometry Method	Martin, Kevin Herrgard, Markus Reeves, Kathleen	13/250758 09/30/11	2012/0083041 04/05/12	8871525 10/28/14
US	BP	Microbial Community Normalization for Metagenomic Analyses	Ishoey, Thomas Clement, Brian G. Mathur, Eric J. Toledo, Gerardo V.	13/186319 07/19/11		
US	BP	Solubilization of Coal or Lignocellulose Biomass	Clement, Brian G. Richardson, Toby Underwood, Stuart A.	13/229504 09/09/11	2012/0064609 03/15/12	9528061 12/27/16
US	MSTO	Method for High-Throughput Identification of Microbial Antagonists against Pathogens	Kerovuo, Janne S. McCann, Ryan T.	13/281270 10/25/11	2012/0107915 05/03/12	
US		Compositions and Methods for Modulating the Sensitivity of Cells to AHAS Inhibitors	Champagne, Michele Urano, Jun	13/871737 04/26/13	2013/0288377 10/31/13	9441238 09/13/16
US		Regulatory Elements and Uses Thereof	Champagne, Michele Richardson, Toby H. Urano, Jun	13/915522 06/11/13	2014/0363892 12/11/14	9546372 01/17/17
US		Molecules Associated with Fatty Acid Biosynthetic Pathways and Uses Thereof	Toledo, Gerardo V. Xu, Karen D. Urano, Jun	14/637356 03/03/15	2016/0122741 05/05/16	10,131,897 11/20/18
US		Molecules Associated with Fatty Acid Biosynthetic Pathways and Uses Thereof	Toledo, Gerardo V. Xu, Karen D. Urano, Jun	16/193684 11/16/2018		
US		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	13/757633 02/01/13	2013/0225451 08/29/13	9771576 09/26/17
US		Materials and Methods for the Synthesis of Error-Minimized Nucleic Acid Molecules	Gibson, Daniel G. Caiazza, Nicky Richardson, Toby H.	15/667515 08/02/17	2018/0051280 02/22/18	
US		PEG-Mediated Assembly of Nucleic Acid Molecules	Qi, Zhiqing Urano, Jun Caiazza, Nicky C. Gibson, Daniel G.	16/212534 12/6/18		
US		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	13/969215 08/16/13	2014/0274808 9/18/14	9718060 08/01/17
US		Digital to Biological Converter	Venter, J. Craig Gibson, Daniel G. Gill, John E.	15/654306 07/19/17	2017/0320061 11/09/17	
US	EMRE	Production and Secretion of Fatty Acids and Fatty Acid Derivatives	Holtzapple, Erik Brown, Robert C. Seshadri, Rekha Coppersmith, Jennifer Verruto, John	13/629492 09/27/12	2013/0078686 03/28/13	9017975 04/28/15
US		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	14/033300 09/20/13	2014/0106414 04/17/14	9506090 11/29/16
US		Compositions and Methods for Producing Chemicals and Derivatives Thereof	Kambourakis, Spiros Griffin, Benjamin Martin, Kevin V.	14/222453 03/21/14	2014/0206047 07/24/14	9528133 12/27/16

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US		Algal Mutants Having a Lock-In High Light Acclimated Phenotype	Bailey, Shaun McCarren, Jay L. Lieberman, Soyan Meuser, Jonathan E. Romano, Anna E. Yee, Daniel Soriaga, Leah Brown, Robert C. Weissman, Joseph C. Prince, Robert C. Nielsen, Robert D.	14/099879 12/06/13	2014/0220638 08/07/14	9982272 05/29/18
US		Compositions and Methods for Modulating Biomass Productivity	Ajjawi, Imad Aqui, Moena Soriaga, Leah	14/506575 10/03/14	2015/0191515 07/09/15	9765126 09/19/17
US		Methods for Producing Dicarboxylic Acids	Griffin, Benjamin M. Kambourakis, Spiros	14/548880 11/20/14	2015/0176041 06/25/15	9909154 03/06/18
US		Nannochloropsis Spliced Leader Sequences and Uses Therefor	Seshadri, Rekha Schwartz, Ariel S. Soriaga, Leah Brown, Robert C.	14/098270 12/05/13	2014/0186842 07/03/14	9914931 03/13/18
US		Nannochloropsis Spliced Leader Sequences and Uses Therefor	Seshadri, Rekha Schwartz, Ariel S. Soriaga, Leah Brown, Robert C.	15/878243 01/23/18	2018/0155731 06/07/18	
US		Autonomous Replication Sequences and Episomal DNA Molecules	DeHoff, Peter Soriaga, Leah Akella, Srividya	14/099682 12/06/13	2015/0094209 04/02/15	9447422 09/20/16
US		Biomass Productivity Regulator	Ajjawi, Imad Aqui, Moena Chavez-Torres, Carlos	14/586612 12/30/14	2015/0183838 07/02/15	9441020 09/13/16
US		Microorganisms Engineered for Increased Productivity	Bauman, Nick Ajjawi, Imad	15/256460 09/02/16	2017/0067069 03/09/17	
US		Recombinant RNA Particles and Methods of Use	Brown, Robert C. Kamrud, Kurt I.	14/622671 02/13/15	2015/0240236 08/27/15	
US		Regulatory Elements from Labyrinthulomycetes Microorganisms	Caiazza, Nicky C. Win, Maung N. Urano, Jun	15/056857 02/29/16	2016/0257965 09/08/16	9932599 04/03/18
US		Regulatory Elements from Labyrinthulomycetes Microorganisms	Caiazza, Nicky C. Win, Maung N. Urano, Jun	15/916171 03/08/18	2018/0201941 07/19/18	
US		Enhanced Productivity by Attenuation of Chlorophyll Binding Protein Genes	Meuser, Jonathan E. DiPetrillo, Christen G. McCarren, Jay Bailey, Shaun	15/299457 10/20/16	2017/0114107 04/27/17	
US		Compositions and Methods for High Efficiency In Vivo Genome Editing	Verruto, John H. Moellering, Eric R.	14/986492 12/31/15	2017/0073695 03/16/17	
US		Microorganisms for Fatty Acid Production Using Elongase and Desaturase Enzymes	Caiazza, Nicky Felnagle, Elizabeth Urano, Jun Win, Maung Nyan Radakovits, Randor R.	15/068448 03/11/16	2016/0264985 09/15/16	
US		Tamper-Resistant Assembly for Securing Valuable Material	Warden, Laurence Newman-Lehman, Tei Gibson, Daniel G.	14/702378 05/01/15	2015/0314927 11/05/15	9751668 09/05/17
US		Tamper-Resistant Assembly for Securing Valuable Material	Warden, Laurence Newman-Lehman, Tei Gibson, Daniel G.	15/682288 08/21/17	2017/0341834 11/30/17	10017306 07/10/18
US		Expression of Type I Fatty Acid Synthase Genes in Eukaryotic Algae	Moellering, Eric R. Xu, Weidong Verruto, John H. Roessler, Paul G.	15/394414 12/29/16	2017/0191094 07/06/17	

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US		Lid Mechanism	Warden, Laurence Beaver, Scott Wayne Becker, Mark Henry	14/800113 07/15/15	2016/0016163 01/21/16	9446407 09/20/16
US		Protein Rich Food Ingredient from Biomass and Methods of Preparation	Rutt, George Clifford Flatt, James H. Domaille, Peter Toledo, Gerardo V.	14/809051 07/24/15	2017/0020159 01/26/17 2017/0196238 07/13/17 (Corrected Publ)	
US		Protein Rich Food Ingredient from Biomass and Methods of Preparation	Rutt, George Clifford Flatt, James H. Domaille, Peter Toledo, Gerardo V.	15/328756 07/24/15 371	2017/0208835 07/27/17	
US		Protein Rich Food Ingredient from Biomass and Methods of Production	Rutt, George Clifford Flatt, James H. Domaille, Peter Toledo, Gerardo V. Duennen, Daniel G.	15/005695 01/25/16	2016/0135480 05/19/16	
US		Microorganisms Having Increased Lipid Production, and Compositions, and Methods of Making and Using the Same	Moellering, Eric R. Carlson, Thomas J.	62/702253 07/23/18		
US		Compositions and Methods for Expressing Genes in Algae	Moellering, Eric R. Edwards, Amanda R. Bauman, Nicholas	15/365844 11/30/16	2017/0152520 06/01/17	10041079 08/07/18
US		Compositions and Methods for Expressing Genes in Algae	Moellering, Eric R. Edwards, Amanda R. Bauman, Nicholas	16/056359 08/06/18		
US		Algal Mutants with Increased Lipid Productivity	Ajjawi, Imad Soriaga, Leah Aqui, Moena Moellering, Eric R.	15/341998 11/02/16	2017/0121742 05/04/17	
US		Microorganisms having Increased Lipid Productivity	Ajjawi, Imad Moellering, Eric R. Soriaga, Leah Aqui, Moena	15/210845 07/14/16	2017/0058303 03/02/17	
US		Algal Chloroplastic SRP54 Mutants	DiPetrillo, Christen McCarren, Jay Soriaga, Leah	15/130866 04/15/16	2016/0304896 10/20/16	
US		Genetically Engineered Vibrio sp. and Uses Thereof	Weinstock, Matthew T Wilson, Christopher M. Hesek, Eric D.	15/367106 12/01/16		
US		Protein Containing Material from Biomass and Methods of Production	Scholten, Johannes Lakshmanaswamy, A. Burke, Joel Rutt, George C.	15/417132 01/26/17	2017/0208834 07/27/17	
US		Synthesis of FDCA and FDCA Precursors from Gluconic Acid Derivatives	Kambourakis, Spiros Griffin, Benjamin M.	15/202298 07/05/16	2017/0050944 02/23/17	10087161 10/02/2018
US		Recombinant RNA Particles and Methods of Producing Proteins	Brown, Robert C. Kamrud, Kurt I.	15/236144 08/12/16	2017/0044555 02/16/17	
US		Device and Methods for Biolytic Transformation	Edwards, Amanda R. Verruto, John H.	15/343064 11/03/16	2017/0130238 05/11/17	
US		Improving Algal Lipid Productivity via Genetic Modification of a TPR Domain Containing Protein	Verruto, John H. Moellering, Eric R. Ajjawi, Imad	16/213,928 12/7/18		
US		Improving Algal Lipid Productivity via Genetic Modification of a TPR Domain Containing Protein	Verruto, John H. Moellering, Eric R. Ajjawi, Imad	PCT/US2018/64505 12/7/18		
US		Methods for Assembling DNA Molecules	Gill, John E. Gibson, Daniel G. Fu, Lixia	15/839597 12/12/17	2018/0163254 06/14/18	

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US		Production of Proteins in Labyrinthulomycetes	Caiazza, Nicky C. Urano, Jun Win, Maung N. Boles, Kent S.	15/460038 03/15/17	2017/0268015 09/21/17	
US		Improving Algal Lipid Productivity via Genetic Modification of a Signaling Protein	Ajjawi, Imad	16/209,655 12/04/18		
US		Improving Algal Lipid Productivity via Genetic Modification of a Signaling Protein	Ajjawi, Imad	PCT/US2018/63717 12/04/18		
US		Genetically Engineered Vibrio Sp. and Uses Thereof	Weinstock, Matthew T Wilson, Christopher M.	15/687373 08/25/17	2018/0057824 03/01/18	
US		Expression of Modified Glycoproteins and Glycopeptides	Caiazza, Nicky C.	15/799785 10/31/17	2018-0119193 05/03/18	
US		Expression of Modified Glycoproteins and Glycopeptides	Caiazza, Nicky C.	15/967202 04/30/18	2018-0251569 09/06/2018	
US		High Productivity Algal Mutants having Reduced Photosynthetic Antenna	Moellering, Eric R. Bauman, Nicholas Radakovits, Randor R. Spreafico, Roberto Kuzminov, Fedor Ajjawi, Imad Imam, Saheed Schultz, Andrew Kwok, Kathleen Aqui, Moena Nominati, Jennifer Verruto, John H. Bailey, Shaun	15/859094 12/29/17	2018/0186842 07/05/18	
US		Polypeptides with Type V CRISPR Activity and Uses Thereof	Monds, Russell D. Mantovani, Simone M. Komor, Russell, S. LaFave, Matthew C. Kannan, Krishna LaMattina, Joseph W. Lucas, Joseph S. Moellering, Eric R.	15/953286 04/13/18		
US		Vibrio Sp. Organisms with Modified Lipopolysaccharide	Weinstock, Matthew T Gibson, Daniel G. Strimling, Daniel	16/154618 10/08/2018		
US		Organisms and Methods for Producing Glycomolecules with Low Sulfation	Caiazza, Nicky C. Urano, Jun	62/638796 03/05/18		
US		Recombinant Organisms and Methods for Producing Glycomolecules with Low Sulfation	Caiazza, Nicky Urano, Jun Kambourakis, Spiros	62/665187 05/01/18		
US		Genetic Modulation of Photosynthetic Organisms for Improved Growth	Ajjawi, Imad Kuzminov, Fedor I. Radakovits, Randor R. Verruto, John H. Potts, Sarah J. Spreafico, Roberto Lambert, William F. Grainer, Jessica N.	16/234,209 12/27/18		
US		Recombinant Organisms and Methods for Producing Glycomolecules with High Glycan Occupancy	Caiazza, Nicky Urano, Jun Kambourakis, Spiros	62/665270 05/01/18		

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US		Polypeptides with Type V CRISPR Activity and Uses Thereof	Monds, Russell D. Mantovani, Simone M. Komor, Russell, S. LaFave, Matthew C. Kannan, Krishna LaMattina, Joseph W. Lucas, Joseph S. Moellering, Eric R.	62/657489 04/13/18		
US		AVOIDING EPIGENETIC SILENCING OF EXOGENOUS NUCLEIC ACID IN ALGAE	Pais, June Spreafico, Roberto	62/779,364 12/13/18		
US		Controlled Gene Expression in Algae	John Verruto	62/782,152 12/19/18		
US	SGVI	Amplification and Cloning of Single DNA Molecules Using Rolling Circle Amplification	Hutchison, Clyde A. Smith, Hamilton O.	11/919515 10/29/07 371	2009/0176280 07/09/09	8497069 07/30/13
US	SGVI	In Vitro Recombination Method	Young, Lei Smith, Hamilton O. Gibson, Daniel G.	11/502746 08/11/06	2007/0037197 02/15/07	7723077 05/25/10
US	SGVI	In Vitro Recombination Method	Young, Lei Smith, Hamilton O. Gibson, Daniel G.	12/750571 03/30/10	2010/0184187 07/22/10	9534251 01/03/17
US	SGVI	In Vitro Recombination Method	Young, Lei Smith, Hamilton O. Gibson, Daniel G.	15/385537 12/20/16	2017/0233764 08/17/17	
US	SGVI	Method for In Vitro Recombination	Gibson, Daniel G. Smith, Hamilton O.	11/502624 08/11/06	2007/0037196 02/15/07	7776532 08/17/10
US	SGVI	Method for In Vitro Recombination	Gibson, Daniel G. Smith, Hamilton O.	12/820861 06/22/10	2010/0311126 12/09/10	8435736 05/07/13
US	SGVI	Synthesis of Error-Minimized Nucleic Acid Molecules	Young, Lei	11/633686 12/04/06	2007/128649 06/07/07	7704690 04/27/10
US	SGVI	Installation of Genomes or Partial Genomes into Cells or Cell-like Systems	Glass, John I. Young, Lei Lartigue, Carole Assad-Garcia, Nacyra Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig	11/644713 12/22/06	2007/0269862 11/22/07	9434974 09/06/16
US	SGVI	Synthetic Genomes	Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O. Gibson, Daniel G.	11/635355 12/06/06	2007/0264688 11/15/07	10041060 08/07/18
US	SGVI	Synthetic Genomes	Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O. Gibson, Daniel G.			
US		Recombinant Hydrogen-Producing Cyanobacterium and Uses Thereof	Xu, Qing Smith, Hamilton O.	12/445929 04/16/09	2010/0291651 11/18/10 371	8859744 10/14/14
US	SGVI	Assembly of Large Nucleic Acids	Gibson, Daniel G. Benders, Gwynedd A. Young, Lei Glass, John I. Venter, J. Craig Hutchison, Clyde A. Smith, Hamilton O.	12/247126 10/07/08	2009/0275086 11/05/09	9593329 03/14/17

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US	SGVI	Methods of Genome Installation in a Recipient Host Cell	Lartigue, Carole Glass, John I. Alperovich, Nina Hutchison, Clyde A. Smith, Hamilton O. Venter, J. Craig Merryman, Charles Vashee, Sanjay	12/598414 10/30/09 371	2011/0045592 02/24/11	9481880 11/01/16
US	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	12/371543 02/13/09	2010/0035768 02/11/10	8968999 03/03/15
US	SGVI	Methods for In Vitro Joining and Combinatorial Assembly of Nucleic Acid Molecules	Gibson, Daniel G. Smith, Hamilton O. Hutchison, Clyde A. Young, Lei Venter, J. Craig	14/636082 03/02/15	2015/0240280 08/27/15	
US	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	12/718911 03/05/10	2011/0053272 03/03/11	9273310 03/01/16
US	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	CIP 12/783489 05/19/10	2011/0053273 03/03/11	9267132 02/23/16
US	SGVI	Methods for Cloning and Manipulating Genomes	Benders, Gwynedd A. Glass, John I. Hutchison, Clyde A. Lartigue, Carole Vashee, Sanjay Algire, Mikkel A. Smith, Hamilton O. Merryman, Charles E. Noskov, Vladimir N. Chuang, Ray-Yuan Venter, J. Craig Gibson, Daniel G.	15/051463 02/23/16	2016/0177322 06/23/16	
US	SGVI	Encoding Text into Nucleic Acid Sequences	Hutchison, Clyde A. Montague, Michael G. Smith, Hamilton O.	15/052781 02/24/16	2016/0168579 06/16/16	
US		Crowding Agent-Induced Nucleic Acid Transfer into a Recipient Host Cell	Karas, Bogumil J. Hutchison, Clyde A. Smith, Hamilton O. Suzuki, Yo	14/015070 08/30/13	2014/0179001 06/26/14	9206435 12/08/15
US		Microbial Fuel Cell	Bretschger, Orianna Wanger, Greg	13/892087 05/10/13	2013/0302703 11/14/13	
US		High Efficiency Method for Algal Transformation	Karas, Bogumil J. Weyman, Philip D. Dupont, Christopher L. Allen, Andrew F.	15/048882 02/19/16	2016/0244770 08/25/16	

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**SGI IP Portfolio
February 2019**

UP=US Pending UI=US Issued
FP=Foreign Pending CV=Converted
NT=Nat'l Phase
FG=Foreign Granted EG=EP Granted

Cty	L'ee	Title	Inventors	Application No. Filing Date	Publn No. Date	Patent No. Issue Date
US		Generation of Synthetic Genomes	Hutchison, Clyde A. Chuang, Ray-Yuan Noskov, Vladimir N. Karas, Bogumil J. Wise, Kim S. Smith, Hamilton O. Glass, John I. Merryman, Charles E. Gibson, Daniel G. Venter, J. Craig Kannan, Krishna	15/466675 03/22/17	2018/0119132 05/03/18	
US	SGI	Method for Producing Polymers	Stähler, Peer F. Stähler, Cord F. Müller, Manfred	371 09/869332 02/18/00		6586211 07/01/03
US	SGI	Method for Producing Polymers	Stähler, Peer F. Stähler, Cord F. Müller, Manfred	12/400493 02/18/00	2009/0170802 07/02/09	9568839 02/14/17
US	SGI	Method for Producing Polymers	Stähler, Peer F. Stähler, Cord F. Müller, Manfred	15/426860 02/07/17	2017/0147748 05/25/17	
US	SGI	Method for Producing Polymers	Stähler, Peer F. Stähler, Cord F. Müller, Manfred	10/455369 02/18/00	2003/0198948 10/23/03	7790369 09/07/10
US	SGI	Synthesis of Sequence-Verified Nucleic Acids	Stähler, Peer F. Carapito, Raphael Stähler, Cord F. Matzas, Mark Leonard, Jack T. Jaeger, Joachim Beier, Markus	12/708783 02/19/10	2010/0216648 08/26/10	
US	SGI	Synthesis of Sequence-Verified Nucleic Acids	Stähler, Peer F. Carapito, Raphael Stähler, Cord F. Matzas, Mark Leonard, Jack T. Jaeger, Joachim Beier, Markus	15/465532 03/21/17	2017/0267999 09/21/17	
US	SGI	Programmable Oligonucleotide Synthesis	Stähler, Peer F. Carapito, Raphael	371 12/438425 08/23/07	2010/0015668 01/21/10	8173368 05/08/12
US	SGI	Programmable Oligonucleotide Synthesis	Stähler, Peer F. Carapito, Raphael	13/441186 08/23/07	2012/0196757 08/02/12	8367335 02/05/13
US	SGI	Programmable Oligonucleotide Synthesis	Stähler, Peer F. Carapito, Raphael	13/741231 01/14/13	2013/0130321 05/23/13	9644225 05/09/17
US	SGI	Programmable Oligonucleotide Synthesis	Stähler, Peer F. Carapito, Raphael	15/589837 05/08/17	2017/0240956 08/24/17	
US	SGI	Recombinant Arterivirus Replicon Systems and Uses Thereof	Kamrud, Kurt Wang, Nathaniel S. Felderman, Martina Carrico, Nancy	15/486131 04/12/17	2017/0314043 11/02/17	
US	SGI	Recombinant Virus Replicon Systems and Uses Thereof	Kamrud, Kurt I.	15/723658 10/03/17	2018/0104359 04/19/18	
US	SGI	Compositions and Methods for Enhancing Gene Expression	Kamrud, Kurt I. Win, Maung N. Wang, Nathaniel S. DeHart, Jason L.	15/831230 12/04/17	2018/0171340 06/21/18	
US	SGI	Induce and Enhance Immune Responses using Recombinant Replicon Systems	Kamrud, Kurt I. Wang, Nathaniel S. Aliahmad, Parinaz DeHart, Jason L.	16/251,928 01/18/19		

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**S&G IP Portfolio
February 2019**

UP=US Pending UJ=US Issued
 FP=Foreign Pending CV=Converted
 NT=Nat'l Phase
 FG=Foreign Granted EG=EP Granted

Cty	Lee	Title	Inventors	Application No. Filing Date	Publ No. Date	Patent No. Issue Date
WO		Genetic Modulation of Photo	Ajjawi, Imad Kuzminov, Fedor I. Radakovits, Randor R. Verruto, John H. Potts, Sarah J. Spreafico, Roberto Lambert, William F. Greiner, Jessica N.	PCT/US2018/66712 12/27/18		
ZA		Secretion of Fatty Acids by Photosynthetic Microorganisms	Roessler, Paul Chen, You Liu, Bo Dodge, Corey	201004253 12/11/08		2010/04253 08/31/11
ZA	BP	Methods to Stimulate Biogenic Methane Production from Hydrocarbon-bearing Formations	Toledo, Gerardo V. Richardson, Toby Stingl, Ulrich Mathur, Eric J. Venter, J. Craig	2010/07841 05/12/09		2010/07841 07/30/14
ZA		Production of Branched-Chain Alcohols by Photosynthetic Microorganisms	Roessler, Paul G. Liu, Bo Kristof, Jessica R.	2011/04352 12/10/09		2011/04352 09/26/12
ZA	MSTO	Method for High-Throughput Identification of Microbial Antagonists against Pathogens	Kerovuo, Janne S. McCann, Ryan T.	2013/02901 10/25/11		2013/02901 07/27/16
ZA	AGRD	Integrated Method for High-Throughput Identification of Novel Pesticidal Compositions and Uses Therefor	Grandlic, Christopher J. Kerovuo, Janne S. Richardson, Toby H. Schwartz, Ariel S.	2014/01091 08/17/12		
ZA	SGVI	Encoding Text into Nucleic Acid Sequences	Hutchison, Clyde A. Montague, Michael G. Smith, Hamilton O.	2012/03447 10/29/10		
		Generation of Synthetic Genomes	Hutchison, Clyde A. Chuang, Ray-Yuan Noskov, Vladimir N. Karas, Bogumil J. Wise, Kim S. Smith, Hamilton O. Glass, John I. Merryman, Charles E. Gibson, Daniel G. Venter, J. Craig Kannan, Krishna Ding, Lin	2017238212 09/14/18	2017/165565 09/28/17	
		Generation of Synthetic Genomes		3018199 09/18/18		
		Generation of Synthetic Genomes		17771095.1 03/22/17		

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EXHIBIT C

Trademarks





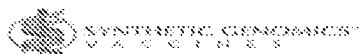


IP PORTFOLIO REPO

3/8/2019



SYNTHETIC GENOMICS®

UP=US Pending UI=US Issued
 FP=Foreign Pending CV=Converted
 NT=Nat'l Phase
 FG=Foreign Granted EG=EP Granted
 TBF=To be filed AB=Abandoned








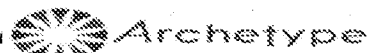
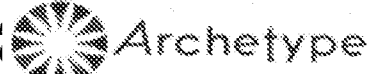


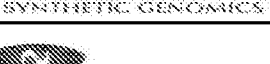
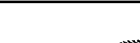
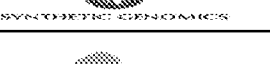

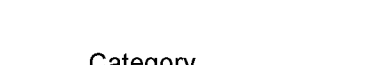
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	US	GIBSON ASSEMBLY	1, 5, 9, and 10	85/977,312 12/14/2010	
	US	Color Logo	42	77/218122 06/28/07	3385070 02/19/08
	US	SYNTHETIC GENOMICS & Color Logo	42	77/217998 06/28/07	3385057 02/19/08
	US	B&W Logo	42	77/218198 06/28/07	3385078 02/19/08
	US	SYNTHETIC GENOMICS & b&w logo	42	77/218175 06/28/07	3385075 02/19/08
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	US	SYNTHETIC GENOMICS VACCINES & NEW LOGO	5 and 42	85/369410 07/12/11	4716678 04/07/15
ARCHETYPE®	US	Word mark - black and white	9 and 42	85/173654 11/10/10	4202934 09/04/12

Category

- 1 - DNA Manip & Synthetic Biology
- 2 - Apparatus
- 3 - New Generation Fuels & Chem
- 4 - Coal Utilization
- 5 - Agricultural Solutions

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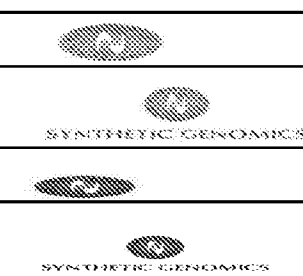
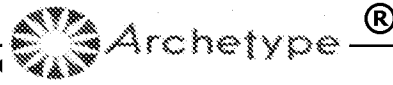
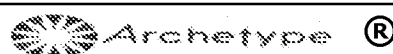
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Oscella	US		42	87545355 07/27/17	
BioXP	US	Word mark - black and white	9, 42	87/890162 04/24/18	
 ®	MY	Color Logo	42	2007/25259 12/19/07	07025259 06/28/07
 ®	MY	SYNTHETIC GENOMICS & Color Logo	42	2007/25261 12/24/07	07025261 06/28/07
 ®	MY	B&W Logo	42	2007/25263 12/24/07	07025263 06/28/07
 ®	MY	SYNTHETIC GENOMICS & b&w logo	42	2007/25260 12/24/07	07025260 06/28/07
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	MX	Color Logo	42	904176 12/19/07	1034527 04/14/08
	MX	B&W Logo	42	904175 12/19/07	1034526 04/14/08
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ARCHETYPE®	MX	Word mark - black and white	42	1176983 05/10/11	1310119 09/07/12
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 Archetype	MX	Word + logo	42	1176978 05/10/11	1310118 09/07/12
	MX	Mexico	9,42	A0072969 01/19/18	
	JP	Color Logo	42	2007-126757 12/25/07	5159247 08/15/08
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	JP	B&W Logo	42	2007-126759 12/25/07	5160812 08/22/08
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Category

- 1 - DNA Manip & Synthetic Biology
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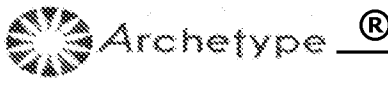





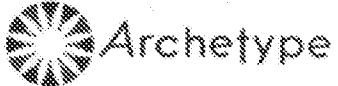







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	JP	Word + logo	9 and 42	2011-91618 12/20/11	5493978 05/18/12
	JP	Word + logo	9 and 42	2011-031390 05/09/11	5461775 01/06/12
	JP	Word mark - black and white	1, 9, 42	2011-040564 06/13/11	5467385 02/03/12
	JP	Japan	9,42	A0072969 01/19/18	
	IN	SYNTHETIC GENOMICS VACCINES & NEW LOGO	5 and 42	2265446 01/12/12	
	IN	India	9,42	A0072969 01/19/18	
	FR	France	9,42	07/27/17	
Oscella	EP	Europe	9,42	1399016 01/19/18	
	CTM	Color Logo	42	006540901 12/27/07	006540901 11/19/08
	CTM	SYNTHETIC GENOMICS & Color Logo	42	006540629 12/27/07	006540629 11/19/08
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Category

- 1 - DNA Manip & Synthetic Biology
- 2 - Apparatus
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Mark	Country	Mark comments	Class(es)	Application No. Filing Date	Reg. Date/Reg. No.
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Oscella	CN	China	9,42	A0072969 01/19/18	
	CA	Color Logo	42	1376680 12/19/07	774491 08/13/10
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	CA	B&W Logo	42	1376690 12/19/07	774340 08/12/10
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Category

- 1 - DNA Manip & Synthetic Biology
- 2 - Apparatus
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Mark	Country	Mark comments	Class(es)	Application No. Filing Date	Reg. Date/Reg. No.
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	AU	Word + logo	9 and 42	1424067 05/09/11	1424067 05/09/11
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Category

- 1 - DNA Manip & Synthetic Biology
- 2 - Apparatus
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- 4 - Coal Utilization
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EXHIBIT D

Mask Works

Description

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Application
Number

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Application
Date