

<b>PATENT ASSIGNMENT COVER SHEET</b>
--------------------------------------

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5714386

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

**CONVEYING PARTY DATA**

Name	Execution Date
INN SA LLC	09/10/2019

**RECEIVING PARTY DATA**

<b>Name:</b>	INVITAE CORPORATION
<b>Street Address:</b>	1400 16TH STREET
<b>City:</b>	SAN FRANCISCO
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	94103
<b>Name:</b>	GOOD START GENETICS, INC.
<b>Street Address:</b>	1400 16TH STREET
<b>City:</b>	SAN FRANCISCO
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	94103
<b>Name:</b>	COMBIMATRIX CORPORATION
<b>Street Address:</b>	1400 16TH STREET
<b>City:</b>	SAN FRANCISCO
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	94103

**PROPERTY NUMBERS Total: 107**

Property Type	Number
Patent Number:	8600683
Patent Number:	9624533
Application Number:	15098272
Application Number:	15513374
Application Number:	15514957
Application Number:	15661396
Application Number:	15711760
PCT Number:	US2017052771
Patent Number:	6444111
Patent Number:	6280595

PATENT

<b>Property Type</b>	<b>Number</b>
<b>PCT Number:</b>	US9711463
<b>PCT Number:</b>	US9900599
<b>PCT Number:</b>	US0532569
<b>PCT Number:</b>	US0636616
<b>PCT Number:</b>	US0641246
<b>Application Number:</b>	61426817
<b>PCT Number:</b>	US1165098
<b>Application Number:</b>	61174470
<b>PCT Number:</b>	US1001293
<b>Application Number:</b>	61789164
<b>PCT Number:</b>	US1428212
<b>Application Number:</b>	61178923
<b>Application Number:</b>	61179358
<b>Application Number:</b>	61182089
<b>Application Number:</b>	13077169
<b>PCT Number:</b>	US1229790
<b>PCT Number:</b>	US2013033435
<b>Application Number:</b>	61548073
<b>Application Number:</b>	13616788
<b>PCT Number:</b>	US2012055362
<b>Application Number:</b>	14984644
<b>Application Number:</b>	15818165
<b>Application Number:</b>	16030413
<b>Application Number:</b>	61624778
<b>PCT Number:</b>	US2013036575
<b>Application Number:</b>	61621779
<b>Application Number:</b>	13667575
<b>PCT Number:</b>	US2013032885
<b>Application Number:</b>	14329243
<b>Application Number:</b>	13488142
<b>PCT Number:</b>	US2013044039
<b>Application Number:</b>	61707495
<b>Application Number:</b>	14036625
<b>PCT Number:</b>	US2013061691
<b>Application Number:</b>	61723550
<b>Application Number:</b>	14073500
<b>PCT Number:</b>	US2013068769
<b>Application Number:</b>	61723508

<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	14043113
<b>PCT Number:</b>	US2013062842
<b>Application Number:</b>	61784624
<b>PCT Number:</b>	US2014027324
<b>Application Number:</b>	61830540
<b>Application Number:</b>	14293568
<b>PCT Number:</b>	US2014040516
<b>Application Number:</b>	14466281
<b>Application Number:</b>	14604165
<b>Application Number:</b>	14959162
<b>Application Number:</b>	15396936
<b>Application Number:</b>	14057673
<b>Application Number:</b>	14132364
<b>PCT Number:</b>	US2014060056
<b>Application Number:</b>	61892848
<b>PCT Number:</b>	US2014060256
<b>Application Number:</b>	61892856
<b>PCT Number:</b>	US2014061138
<b>Application Number:</b>	14132339
<b>Application Number:</b>	61991839
<b>Application Number:</b>	14710229
<b>PCT Number:</b>	US2015030366
<b>Application Number:</b>	62048452
<b>PCT Number:</b>	US2015049132
<b>Application Number:</b>	62037861
<b>Application Number:</b>	14826595
<b>PCT Number:</b>	US2015045247
<b>Application Number:</b>	62054725
<b>Application Number:</b>	14858637
<b>PCT Number:</b>	US2015050964
<b>Application Number:</b>	62060907
<b>Application Number:</b>	62100254
<b>PCT Number:</b>	US2016012286
<b>Application Number:</b>	16117248
<b>Application Number:</b>	62065322
<b>Application Number:</b>	14886858
<b>PCT Number:</b>	US2015056037
<b>Application Number:</b>	62103716

Property Type	Number
Application Number:	14994325
Application Number:	29518525
PCT Number:	US2016013143
Application Number:	16111909
Application Number:	62103802
Application Number:	14995354
PCT Number:	US2016013346
Application Number:	61615535
Application Number:	61659695
Application Number:	14388314
Application Number:	14792716
Application Number:	62219408
Application Number:	15266717
PCT Number:	US2016051928
Application Number:	62219437
Application Number:	15266726
Application Number:	62292096
Application Number:	16074370
Application Number:	62371175
PCT Number:	US2017043745
Patent Number:	6093302

**CORRESPONDENCE DATA**

**Fax Number:** (858)509-4010

*Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.*

**Phone:** (858)509-4000

**Email:** docket\_ip@pillsburylaw.com, cynthia.stroesser@pillsburylaw.com

**Correspondent Name:** PILLSBURY WINTHROP SHAW PITTMAN LLP

**Address Line 1:** 12255 EL CAMINO REAL

**Address Line 2:** SUITE 300

**Address Line 4:** SAN DIEGO, CALIFORNIA 92130-4088

<b>ATTORNEY DOCKET NUMBER:</b>	055911-0000048
<b>NAME OF SUBMITTER:</b>	RICHARD L. BLAYLOCK
<b>SIGNATURE:</b>	/Richard L. Blaylock/
<b>DATE SIGNED:</b>	09/11/2019

**Total Attachments: 30**  
source=Oberland\_Invitae\_PAT\_Termination#page1.tif  
source=Oberland\_Invitae\_PAT\_Termination#page2.tif  
source=Oberland\_Invitae\_PAT\_Termination#page3.tif

source=Oberland\_Invitae\_PAT\_Termination#page4.tif  
source=Oberland\_Invitae\_PAT\_Termination#page5.tif  
source=Oberland\_Invitae\_PAT\_Termination#page6.tif  
source=Oberland\_Invitae\_PAT\_Termination#page7.tif  
source=Oberland\_Invitae\_PAT\_Termination#page8.tif  
source=Oberland\_Invitae\_PAT\_Termination#page9.tif  
source=Oberland\_Invitae\_PAT\_Termination#page10.tif  
source=Oberland\_Invitae\_PAT\_Termination#page11.tif  
source=Oberland\_Invitae\_PAT\_Termination#page12.tif  
source=Oberland\_Invitae\_PAT\_Termination#page13.tif  
source=Oberland\_Invitae\_PAT\_Termination#page14.tif  
source=Oberland\_Invitae\_PAT\_Termination#page15.tif  
source=Oberland\_Invitae\_PAT\_Termination#page16.tif  
source=Oberland\_Invitae\_PAT\_Termination#page17.tif  
source=Oberland\_Invitae\_PAT\_Termination#page18.tif  
source=Oberland\_Invitae\_PAT\_Termination#page19.tif  
source=Oberland\_Invitae\_PAT\_Termination#page20.tif  
source=Oberland\_Invitae\_PAT\_Termination#page21.tif  
source=Oberland\_Invitae\_PAT\_Termination#page22.tif  
source=Oberland\_Invitae\_PAT\_Termination#page23.tif  
source=Oberland\_Invitae\_PAT\_Termination#page24.tif  
source=Oberland\_Invitae\_PAT\_Termination#page25.tif  
source=Oberland\_Invitae\_PAT\_Termination#page26.tif  
source=Oberland\_Invitae\_PAT\_Termination#page27.tif  
source=Oberland\_Invitae\_PAT\_Termination#page28.tif  
source=Oberland\_Invitae\_PAT\_Termination#page29.tif  
source=Oberland\_Invitae\_PAT\_Termination#page30.tif

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Registrants/Applicants:**                    **INVITAE CORPORATION**  
   **GOOD START GENETICS, INC.**  
   **COMBIMATRIX CORPORATION**

**Patents and Patent Applications:**   **See attached Exhibit A**

**TERMINATION OF PATENT SECURITY INTEREST**

**September 10, 2019**

WHEREAS, INVITAE CORPORATION, a Delaware corporation, GOOD START GENETICS, INC., a Delaware corporation, and COMBIMATRIX CORPORATION, a Delaware corporation (collectively, the “**Grantors**”), having their principal offices at 1400 16<sup>th</sup> Street, San Francisco, CA 94103 own the patents and patent applications listed on the attached **Exhibit A**, now issued or pending in the United States Patent and Trademark Office; and

WHEREAS, the Grantors entered into that certain Patent Security Agreement dated as of November 6, 2018 (the “**Security Agreement**”), by and between the Grantors and INN SA LLC, a Delaware limited liability company (the “**Secured Party**”), a true and correct copy of which was recorded by the United States Patent and Trademark Office on November 6, 2018 at Reel 047889, Frame 0836.

NOW, THEREFORE, for good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, the Secured Party hereby:

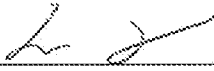
1. releases and reassigns to the Grantors any and all liens, security interests, right, title and interest of the Secured Party pursuant to the Security Agreement in the patents and patent applications more fully described on **Exhibit A**, without recourse or representation or warranty, express or implied; and
2. authorizes and requests the Commissioner of Patents and Trademarks of the United States of America to note and record the existence of the releases hereby given.

[Signature Page Follows]

IN WITNESS WHEREOF, the Secured Party has caused this Termination of Patent Security Interest to be executed by its duly authorized officer effective as of the date above first written.

**SECURED PARTY:**

**INN SA LLC**

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

Name: David Dubinsky

Title: Authorized Signatory

Address: c/o Oberland Capital Management LLC  
1700 Broadway, 37<sup>th</sup> Floor  
New York, NY 10019

**EXHIBIT A**  
**PATENTS AND PATENT APPLICATIONS**

[SEE ATTACHED]



EXHIBIT A

Patents

I. Invitae Corporation

Title	Country	Registration No./ Registration Date	Application No./ Application Date	Case Status
SYSTEMS AND METHODS FOR OBTAINING AND MANAGING SEQUENCING DATA	United States	8,600,683 12/3/2013	13/348,626 1/11/2012	Registered
MULTIPLEX NUCLEIC ACID DETECTION METHODS	United States	9,624,533 4/18/2017	14/099,821 12/6/2013	Registered
MULTIPLEX NUCLEIC ACID DETECTION METHODS	Canada		289434 12/6/2013	Pending
MULTIPLEX NUCLEIC ACID DETECTION METHODS	Israel		239258 12/6/2013	Pending
MULTIPLEX NUCLEIC ACID DETECTION METHODS	China		201380072327.3 12/6/2013	Published
MULTIPLEX NUCLEIC ACID DETECTION METHODS	Japan		2015-545900 12/6/2013	Published
MULTIPLEX NUCLEIC ACID DETECTION METHODS	India		1734/KOLNP/2015 12/6/2013	Pending
MULTIPLEX NUCLEIC ACID DETECTION METHODS	Chile		1568-2015 12/6/2013	Application allowed
MULTIPLEX NUCLEIC ACID DETECTION METHODS	Brazil		1120150132340 12/6/2013	Published
MULTIPLEX NUCLEIC ACID DETECTION METHODS	European Patent Office		13860702.3 12/6/2013	Application allowed
METHODS, SYSTEMS AND PROCESSES OF IDENTIFYING GENETIC VARIATION IN HIGHLY SIMILAR GENES	United States		15/098,272 4/13/2016	Published
MULTIPLEX NUCLEIC ACID DETECTION METHODS	Hong Kong		16104628.4 12/6/2013	Published
METHODS, SYSTEMS AND PROCESSES OF DE NOVO ASSEMBLY OF SEQUENCING READS	United States		15/513,374 10/9/2015	Pending

METHODS, SYSTEMS AND PROCESSES OF DE NOVO ASSEMBLY OF SEQUENCING READS	Canada		2963868	10/9/2015	Pending
METHODS, SYSTEMS AND PROCESSES OF DE NOVO ASSEMBLY OF SEQUENCING READS	Brazil		1120170072823	10/9/2015	Pending
METHODS, SYSTEMS AND PROCESSES OF DE NOVO ASSEMBLY OF SEQUENCING READS	Israel		251277	10/9/2015	Pending
METHODS, SYSTEMS AND PROCESSES OF DE NOVO ASSEMBLY OF SEQUENCING READS	China		201580054801.9	10/9/2015	Published
METHODS, SYSTEMS AND PROCESSES OF DE NOVO ASSEMBLY OF SEQUENCING READS	Japan		2017-518960	10/9/2015	Published
METHODS, SYSTEMS AND PROCESSES OF DE NOVO ASSEMBLY OF SEQUENCING READS	India		201737014511	10/9/2015	Pending
METHODS, SYSTEMS AND PROCESSES OF DE NOVO ASSEMBLY OF SEQUENCING READS	European Patent Office		15849440.1	10/9/2015	Published
UNIVERSAL BLOCKING OLIGO SYSTEM AND IMPROVED HYBRIDIZATION CAPTURE METHODS FOR MULTIPLEXED CAPTURE REACTIONS	United States		15/514,957	10/8/2015	Published
UNIVERSAL BLOCKING OLIGO SYSTEM AND IMPROVED HYBRIDIZATION CAPTURE METHODS FOR MULTIPLEXED CAPTURE REACTIONS	Canada		2964069	10/8/2015	Pending
UNIVERSAL BLOCKING OLIGO SYSTEM AND IMPROVED HYBRIDIZATION CAPTURE METHODS FOR MULTIPLEXED CAPTURE REACTIONS	Brazil		1120170074052	10/8/2015	Pending
UNIVERSAL BLOCKING OLIGO SYSTEM FOR MULTIPLEXED CAPTURE REACTIONS	Israel		251661	10/8/2015	Pending
UNIVERSAL BLOCKING OLIGO SYSTEM FOR MULTIPLEXED CAPTURE REACTIONS	China		201580066291.7	10/8/2015	Published
UNIVERSAL BLOCKING OLIGO SYSTEM FOR MULTIPLEXED CAPTURE REACTIONS	Japan		2017-519306	10/8/2015	Published
UNIVERSAL BLOCKING OLIGO SYSTEM FOR MULTIPLEXED CAPTURE REACTIONS	India		201737016212	10/8/2015	Pending

UNIVERSAL BLOCKING OLIGO SYSTEM FOR MULTIPLEXED CAPTURE REACTIONS	European Patent Office		15849044.1	10/8/2015	Published
BLOOD SAMPLING SYSTEM AND METHOD	United States		15/661,396	7/27/2017	Published
METHODS, SYSTEMS AND PROCESSES OF IDENTIFYING GENETIC VARIATIONS	United States		15/711,760	9/11/2017	Published
METHODS, SYSTEMS AND PROCESSES OF IDENTIFYING GENETIC VARIATIONS	Patent Cooperation Treaty		PCT/US2017/052771	9/21/2017	Published
UNIVERSAL BLOCKING OLIGO SYSTEM AND IMPROVED HYBRIDIZATION CAPTURE METHODS FOR MULTIPLEXED CAPTURE REACTIONS	Hong Kong		17111448.6	10/8/2015	Published
METHODS, SYSTEMS AND PROCESSES OF IDENTIFYING GENETIC VARIATION IN HIGHLY SIMILAR GENES	European Patent Office		16780682.7	4/13/2016	Published
METHODS, SYSTEMS AND PROCESSES OF IDENTIFYING GENETIC VARIATION IN HIGHLY SIMILAR GENES	Canada		2982570	4/13/2016	Pending

II. CombiMatrix Corporation

	Title of Invention	Application / Patent Number	Filing Issue Date	Owner of Record	Status
1.	Electrochemical Solid Phase Synthesis Of Polymers	US6,444,111	September 3, 2002	CombiMatrix 6500 Harbour Heights Parkway Mukilteo, Washington 98275	11.5 Year Maintenance Fee paid 12/12/2013
2.	Electrochemical Solid Phase Synthesis	US6,280,595	August 28, 2001	CombiMatrix 6500 Harbour Heights Parkway Mukilteo, Washington 98275	11.5 Year Maintenance Fee paid 02/21/2013
3.	Electrochemical Solid Phase Synthesis	US6,093,302	July 25, 2000	CombiMatrix 6500 Harbour Heights Parkway Mukilteo, Washington 98275	11.5 Year Maintenance Fee paid 06/11/2012
4.	Electrochemical Solid Phase Synthesis of Polymers	EP 97932 422	Filed July 3, 1997	CombiMatrix	European Patent granted - 01/03/2001
5.	An electrochemical Solid Phase Synthesis of Polymers	Japan JP 2006108755	Filed April 11, 2006	CombiMatrix	JPO Granted - 04/05/2011

6.	Electrochemical Solid Phase Synthesis of Polymers	PCT/US97/11463	Filed July 3, 1997	CombiMatrix Suite 210 887 Mitten Road Burlingame, CA 94010-1303	National Phase: 1. Canada- 2259523 2. European Patent Office - 19979324 3. USA-09/214,348
7.	Gettering Device For Ion Capture	PCT/US99/005 99	Filed January 5, 1999	CombiMatrix Suite 210 887 Mitten Road Burlingame, CA 94010-1303	National Phase: 1. Australia - 22216/99 2. Canada - 2317537 3. China - 99803184.4 4. European Patent Office- 1999902174 5. Japan- 2000527976
8.	Electrochemical Solid Phase Synthesis Of Polymers	China CN 99803184.4	National Entry Date: 01/05/1999	CombiMatrix	Info not available online
9.	Electrochemical Solid Phase Synthesis Of Polymers	EP 1997932422	Filed 07/03/1997	CombiMatrix	European Patent Granted - 01/03/2001
10.	The gettering device for ion capture	Japan JP 2000527976	National Entry Date: 01/05/1999	CombiMatrix	Info not available online

11.	Electrochemical Deblocking Using A Hydrazine Derivative	PCT/US05/325 69	Filed 09/13/2005	CombiMatrix	National Phase: 1. European Patent Office - 2005796638
12.	Solução De Desbloqueio Químico Para Síntese Oligomera Eletroquímica Em Uma Disposição De Eletrodo	Brazil BR PI0608478-8	Filed 03/27/2006	CombiMatrix	Info not available online
13.	Electrode array device having an adsorbed porous reaction layer	China CN Patent No. 101473220	Granted 11/28/2012	CombiMatrix	Patent Granted 11/28/2012
14.	Process to detect binding events on an electrode microarray using enzymes	China CN Patent No. 101400800	Granted 03/27/2013	CombiMatrix	Patent Granted 03/27/2013
15.	Process and apparatus for measuring binding events on a microarray of electrodes	China CN 200680043101.0	Filed 09/25/2006	CombiMatrix	Info not available online
16.	Electrode Array Device Having An Adsorbed Porous Reaction Layer	Israel IL 183418	Filed 05/24/2007	CombiMatrix	Info not available online

17.	Electrode Array Device Having An Adsorbed Porous Reaction Layer Having A Linker Moiety	Israel IL 183417	Filed 05/24/2007	CombiMatrix	Info not available online
18.	Electrochemical Deblocking Solution For Electrochemical Oligomer Synthesis On An Electrode Array	Mexico MX/a/2007/01 1815	Filed 09 /25 /2007	CombiMatrix	Info not available online
19.	Electrochemical deblocking solution for electrochemical oligomer synthesis on an electrode array	China CN 200680017896 .8	Filed 03/27/2006	CombiMatrix	Info not available online
20.	Process And Apparatus For Measuring Binding Events On A Microarray Of Electrodes	EP 06804194	Filed 09/25/2006	CombiMatrix	European Patent granted 07/27/2016

21.	Process To Detect Binding Events On An Electrode Microarray Using Enzymes	PCT/US06/366 16	Filed 09/20/2006	CombiMatrix	National Phase: 1. China- 200680042699.1 2. EPO - 2006851884 3. Japan- 2008541161
22.	Microarray For Pathogen Identification	PCT/US06/04 1 246	Filed 10/20/2006	CombiMatrix	National Phase: 1. EPO- 6851729 (withdrawn- 11/12/2008)
23.	Electrode array device having an adsorbed porous reaction layer having a linker moiety	China CN Patent No. 101156062	Granted 02/22/2012	CombiMatrix	Patent granted 02/22/2012
24.	Electrochemical Deblocking Solution For Electrochemical Oligomer Synthesis On An Electrode Array	Israel IL 186232	Filed 09/24/2007	CombiMatrix	Info not available online
25.	Method For Electrochemical Placement Of Substance	Japan Patent No. 4740020	Granted 05/13/2011	CombiMatrix	Patent granted 05/31/2011



26.	Electrochemical Solid Phase Synthesis Of Polymers	Israel IL 127898	Filed 12/31/1998	CombiMatrix	Info not available online
27.	Matrices De Autoensamblaje	Spain ES 2243247	Filed 03/10/2000	CombiMatrix	Info not available online
28.	Elektrochemischer Festphasensynthese Von Polymeren	Germany DE 69703 841.6	Granted January 3, 2001	CombiMatrix	Patent granted 01/03/2001
29.	Sintesis Electroquimica De Polimeros En Fase Solida.	Spain E97932422	Filed 07/03/1997	CombiMatrix	Info not available online

III. Good Start Genetics, Inc.

[See attached.]

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-001/00US	METHODS FOR MAINTAINING THE INTEGRITY AND IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	61/426817	12/23/2010	Expired			PORRECA, Gregory
GSGE-001/01EP	METHODS FOR MAINTAINING THE INTEGRITY AND IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	11851560	12/15/2011	Abandoned			PORRECA, Gregory; UMBARGER, Mark; CHURCH, George
GSGE-001/01WO	METHODS FOR MAINTAINING THE INTEGRITY AND IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	US11/65098	12/15/2011	NAT PHASE			PORRECA, Gregory; UMBARGER, Mark; CHURCH, George
GSGE-001/02JP	METHODS FOR MAINTAINING THE INTEGRITY AND IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	2015-151861	12/15/2011	Abandoned			PORRECA, Gregory; UMBARGER, Mark; CHURCH, George
GSGE-002/00US	METHOD FOR REDUCING REPRESENTATIONAL BIAS IN MULTIPLEX AMPLIFICATION OF NUCLEIC ACIDS	61/174470	4/30/2009	Expired			PORRECA, Gregory; LASERSON, Uri; Li, Jin Bi
GSGE-002/01AU	METHODS AND COMPOSITIONS FOR EVALUATING GENETIC MARKERS	2010242073	4/30/2010	Abandoned	2010242073	3/3/2016	PORRECA, Gregory; LASERSON, Uri; Li, Jin Bi; WASSMAN, E. Robert

PATENT

REEL: 050454 FRAME: 0577

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-002/01CA	METHODS AND COMPOSITIONS FOR EVALUATING GENETIC MARKERS	2760439	4/30/2010	Abandoned			PORRECA, Gregory; LASERSON, Uri; Li, Jin Bi; WASSMAN, E. Robert
GSGE-002/01EP	METHODS AND COMPOSITIONS FOR EVALUATING GENETIC MARKERS	10770071.8	4/30/2010	Abandoned			PORRECA, Gregory; LASERSON, Uri; Li, Jin Bi; WASSMAN, Robert E.
GSGE-002/01JP	METHODS AND COMPOSITIONS FOR EVALUATING GENETIC MARKERS	2012-508490	4/30/2010	Abandoned			PORRECA, Gregory; LASERSON, Uri; Li, Jin Bi; WASSMAN, E. Robert
GSGE-002/01WO	METHODS AND COMPOSITIONS FOR EVALUATING GENETIC MARKERS	US10/01293	4/30/2010	NAT PHASE			PORRECA, Gregory; LASERSON, Uri; JIN, Billy; WASSMAN, Robert E.; PORRECA, Gregory; LASERSON, Uri; Li, Jin Bi
GSGE-002/02JP	METHODS AND COMPOSITIONS FOR EVALUATING GENETIC MARKERS	2015-164811	4/30/2010	Abandoned			PORRECA, Gregory; LASERSON, Uri; Li, Jin Bi; WASSMAN, E. Robert
GSGE-002/02US	METHODS AND COMPOSITIONS FOR EVALUATING GENETIC MARKERS	61/789164	3/15/2013	Expired			PORRECA, Gregory; UMBARGER, Mark
GSGE-002/03CA	METHODS AND COMPOSITIONS FOR EVALUATING GENETIC MARKERS	2907177	3/14/2014	Abandoned			PORRECA, Gregory; UMBARGER, Mark

PATENT

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-002/03EP	METHODS AND COMPOSITIONS FOR EVALUATING GENETIC MARKERS	14762322.7	3/14/2014	Abandoned			PORRECA, Gregory; UMBARGER, Mark
GSGE-002/03WO	METHODS AND COMPOSITIONS FOR EVALUATING GENETIC MARKERS	PCT/US2014/28212	3/14/2014	NAT PHASE			PORRECA, Gregory; UMBARGER, Mark
GSGE-003/00US	METHODS AND COMPOSITIONS FOR ENHANCING THE SENSITIVITY OF NUCLEIC ACID ANALYSIS	61/178923	5/15/2009	Expired			PORRECA, Gregory; WASSMAN, E. Robert
GSGE-004/00US	METHODS AND COMPOSITIONS FOR REDUCING DIAGNOSTIC ERRORS ASSOCIATED WITH BIAS IN PREPARATIONS OF NUCLEIC ACIDS	61/179358	5/18/2009	Expired			LASERSON, Uri; PORRECA, Gregory
GSGE-005/00US	EVALUATIONS OF TARGET LENGTH IN NUCLEIC ACID CAPTURE-BASED ASSAYS	61/182089	5/28/2009	Expired			PORRECA, Gregory; LASERSON, Uri; LI, Jin Bi
GSGE-006/00US	METHODS FOR MAINTAINING THE INTEGRITY AND IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	13/077169	3/31/2011	Abandoned			UMBARGER, Mark; PORRECA, Gregory
GSGE-006/01DE	IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	12765217	3/20/2012	Granted	60201203446 2.8	7/12/2017	UMBARGER, Mark; PORRECA, Gregory
GSGE-006/01EP	IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	12765217	3/20/2012	VALIDATED	2691546	7/12/2017	UMBARGER, Mark; PORRECA, Gregory

PATENT

REEL: 050454 FRAME: 0579

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-006/01FR	IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	12765217	3/20/2012	Granted	2691546	7/12/2017	UMBARGER, Mark; PORRECA, Gregory
GSGE-006/01GB	IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	12765217	3/20/2012	Granted	2691546	7/12/2017	UMBARGER, Mark; PORRECA, Gregory
GSGE-006/01JP	IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	2014-502629	3/20/2012	Abandoned			UMBARGER, Mark; PORRECA, Gregory
GSGE-006/01WO	IDENTIFICATION OF A NUCLEIC ACID TEMPLATE IN A MULTIPLEX SEQUENCING REACTION	US12/29790	3/20/2012	NAT PHASE			UMBARGER, Mark; PORRECA, Gregory
GSGE-007/01WO	SEQUENCE ASSEMBLY	PCT/US2013/033435	3/22/2013	NAT PHASE			KENNEDY, Caleb; PORRECA, Gregory
GSGE-008/00US	ANALYSIS METHODS	61/548073	10/17/2011	Expired			KENNEDY, Caleb; UMBARGER, Mark A.; PORRECA, Gregory
GSGE-008/01CA	ANALYSIS METHODS	2852665	9/14/2012	Abandoned			KENNEDY, Caleb; UMBARGER, Mark; PORRECA, Gregory
GSGE-008/01EP	ANALYSIS METHODS	12841598.1	9/14/2012	Abandoned			KENNEDY, Caleb; UMBARGER, Mark; PORRECA, Gregory
GSGE-008/01US	ANALYSIS METHODS	13/616788	9/14/2012	Granted	9228233	1/5/2016	KENNEDY, Caleb; UMBARGER, Mark; PORRECA, Gregory
GSGE-008/01WO	ANALYSIS METHODS	PCT/US2012/055362	9/14/2012	NAT PHASE			KENNEDY, Caleb; UMBARGER, Mark; PORRECA, Gregory

PATENT

REEL: 050454 FRAME: 0580

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-008/02US	ANALYSIS METHODS	14/984644	12/30/2015	Granted	9822409	11/21/2017	PORRECA, Gregory; KENNEDY, Caleb; UMBARGER, Mark
GSGE-008/03US	ANALYSIS METHODS	15/818165	11/20/2017	Pending			UMBARGER, Mark; PORRECA, Gregory; KENNEDY, Caleb
GSGE-008/04US	ANALYSIS METHODS	16/030413	7/9/2018	To Be Aband			PORRECA, Gregory; UMBARGER, Mark; KENNEDY, Caleb
GSGE-009/00US	PERFORMANCE OF CAPTURE REACTIONS	61/624778	4/16/2012	Expired			UMBARGER, Mark; PORRECA, Gregory; TOWNE, Charles; CHURCH, George
GSGE-009/01CA	CAPTURE REACTIONS	2870702	4/15/2013	Abandoned			UMBARGER, Mark; PORRECA, Gregory; TOWNE, Charles; CHURCH, George
GSGE-009/01EP	CAPTURE REACTIONS	13778619	4/15/2013	Abandoned			UMBARGER, Mark; PORRECA, Gregory; TOWNE, Charles; CHURCH, George
GSGE-009/01WO	CAPTURE REACTIONS	PCT/US2013/036575	4/15/2013	NAT PHASE			UMBARGER, Mark; PORRECA, Gregory; TOWNE, Charles; CHURCH, George
GSGE-010/00US	VARIANT DATABASE	61/621779	4/9/2012	Expired			NIZZARI, Marcia M.; BRETON, Benjamin H.; TEFFT, David L.; HAURIE, Xavier S.

PATENT

REEL: 050454 FRAME: 0581

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-010/01CA	VARIANT DATABASE	2869938	3/19/2013	Abandoned			NIZZARI, Marcia M.; BRETON, Benjamin H.; TEFFT, David L.; HAURIE, Xavier S.
GSGE-010/01EP	VARIANT DATABASE	13776268.8	3/19/2013	Abandoned			NIZZARI, Marcia M.; BRETON, Benjamin H.; TEFFT, David L.; HAURIE, Xavier S.
GSGE-010/01US	VARIANT DATABASE	13/667575	11/2/2012	Granted	8812422	8/19/2014	BRETON, Benjamin H.; TEFFT, David L.; HAURIE, Xavier S.
GSGE-010/01WO	VARIANT DATABASE	PCT/US2013/032885	3/19/2013	NAT PHASE			NIZZARI, Marcia M.; BRETON, Benjamin H.; TEFFT, David L.; HAURIE, Xavier S.
GSGE-010/02US	VARIANT DATABASE	14/329243	7/11/2014	Granted	9298804	3/29/2016	NIZZARI, Marcia M.; BRETON, Benjamin H.; TEFFT, David L.; HAURIE, Xavier S.
GSGE-011/00US	DETERMINING THE CLINICAL SIGNIFICANCE OF VARIANT SEQUENCES	13/488142	6/4/2012	Published			KENNEDY, Caleb; UMBARGER, Mark; PORRECA, Gregory
GSGE-011/01CA	DETERMINING THE CLINICAL SIGNIFICANCE OF VARIANT SEQUENCES	2875993	6/4/2013	Abandoned			KENNEDY, Caleb; UMBARGER, Mark; PORRECA, Gregory
GSGE-011/01EP	DETERMINING THE CLINICAL SIGNIFICANCE OF VARIANT SEQUENCES	13801252.1	6/4/2013	Abandoned			KENNEDY, Caleb; UMBARGER, Mark; PORRECA, Gregory

**PATENT**



Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-011/01WO	DETERMINING THE CLINICAL SIGNIFICANCE OF VARIANT SEQUENCES	PCT/US2013/044039	6/4/2013	NAT PHASE			KENNEDY, Caleb; UMBARGER, Mark; PORRECA, Gregory
GSGE-012/00US	OPTIMIZATION OF BIOMARKER NUMBERS IN SCREENING ASSAYS	61/707495	9/28/2012	Expired			GREGOR, Valerie; PORRECA, Gregory
GSGE-012/01WO	OPTIMIZATION OF BIOMARKER NUMBERS IN SCREENING ASSAYS	PCT/US2013/061691	9/25/2013	Withdrawn			PORRECA, Gregory; GREGOR, Valerie
GSGE-013/00US	METHODS AND SYSTEMS FOR IDENTIFYING CONTAMINATION IN SAMPLES	61/723550	11/7/2012	Expired			UMBARGER, Mark; PORRECA, Gregory
GSGE-013/01US	METHODS AND SYSTEMS FOR IDENTIFYING CONTAMINATION IN SAMPLES	14/073500	11/6/2013	Fast Track			UMBARGER, Mark; PORRECA, Gregory
GSGE-013/CA00	METHODS AND SYSTEMS FOR IDENTIFYING CONTAMINATION IN SAMPLES	2890441	11/6/2013	Abandoned			UMBARGER, Mark A.; PORRECA, Gregory
GSGE-013/EP00	METHODS AND SYSTEMS FOR IDENTIFYING CONTAMINATION IN SAMPLES	13792832.1	11/6/2013	Abandoned			UMBARGER, Mark A.; PORRECA, Gregory
GSGE-013/WO00	METHODS AND SYSTEMS FOR IDENTIFYING CONTAMINATION IN SAMPLES	PCT/US2013/068769	11/6/2013	NAT PHASE			UMBARGER, Mark A.; PORRECA, Gregory
GSGE-014/00US	VALIDATION OF GENETIC TESTS	61/723508	11/7/2012	Expired			KENNEDY, Caleb; PORRECA, Gregory; UMBARGER, Mark

**PATENT**

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-014/01CA	VALIDATION OF GENETIC TESTS	2888779	10/1/2013	Abandoned			KENNEDY, Caleb; PORRECA, Gregory; UMBARGER, Mark
GSGE-014/01EP	VALIDATION OF GENETIC TESTS	13853034	10/1/2013	Abandoned			KENNEDY, Caleb; PORRECA, Gregory; UMBARGER, Mark
GSGE-014/01US	VALIDATION OF GENETIC TESTS	14/043113	10/1/2013	Abandoned			KENNEDY, Caleb; PORRECA, Gregory; UMBARGER, Mark
GSGE-014/01WO	VALIDATION OF GENETIC TESTS	PCT/US2013/062842	10/1/2013	NAT PHASE			KENNEDY, Caleb; PORRECA, Gregory; UMBARGER, Mark
GSGE-016/00US	METHODS FOR ANALYZING NUCLEIC ACIDS	61/784624	3/14/2013	Expired			UMBARGER, Mark
GSGE-016/01WO	METHODS FOR ANALYZING NUCLEIC ACIDS	PCT/US2014/027324	3/14/2014	NAT PHASE			UMBARGER, Mark A.
GSGE-017/00US	METHODS AND SYSTEMS FOR STORING SEQUENCE READ DATA	61/830540	6/3/2013	Expired			KENNEDY, Caleb; CHENNAGIRI, Niru
GSGE-017/01EP	METHODS AND SYSTEMS FOR STORING SEQUENCE READ DATA	14806828.1	6/2/2014	Abandoned			KENNEDY, Caleb; CHENNAGIRI, Niru
GSGE-017/01US	METHODS AND SYSTEMS FOR STORING SEQUENCE READ DATA	14/293568	6/2/2014	Granted	8847799	9/30/2014	KENNEDY, Caleb; CHENNAGIRI, Niru
GSGE-017/01WO	METHODS AND SYSTEMS FOR STORING SEQUENCE READ DATA	PCT/US2014/040516	6/2/2014	NAT PHASE			KENNEDY, Caleb; CHENNAGIRI, Niru
GSGE-017/02US	METHODS AND SYSTEMS FOR STORING SEQUENCE READ DATA	14/466281	8/22/2014	Granted	8976049	3/10/2015	KENNEDY, Caleb; CHENNAGIRI, Niru
GSGE-017/03US	METHODS AND SYSTEMS FOR STORING SEQUENCE READ DATA	14/604165	1/23/2015	Granted	9292527	3/22/2016	KENNEDY, Caleb; CHENNAGIRI, Niru
GSGE-017/04US	METHODS AND SYSTEMS FOR STORING SEQUENCE READ DATA	14/959162	12/4/2015	Granted	9535920	1/3/2017	KENNEDY, Caleb; CHENNAGIRI, Niru

PATENT

REEL: 050454 FRAME: 0584

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-017/05US	METHODS AND SYSTEMS FOR STORING SEQUENCE READ DATA	15/396936	1/3/2017	Published			KENNEDY, Caleb; CHENNAGIRI, Niru
GSGE-018/00US	METHODS FOR DETERMINING CARRIER STATUS	14/057673	10/18/2013	Published			BOYDEN, Eric D.; PORRECA, Gregory; UMBARGER, Mark
GSGE-018/01US	METHODS FOR DETERMINING CARRIER STATUS	14/132364	12/18/2013	Abandoned			BOYDEN, Eric D.; PORRECA, Gregory; UMBARGER, Mark
GSGE-018/01WO	METHODS FOR DETERMINING CARRIER STATUS	PCT/US2014/060056	10/10/2014	Closed			BOYDEN, Eric D.; PORRECA, Gregory; UMBARGER, Mark
GSGE-019/00US	METHODS FOR ASSESSING A GENOMIC REGION OF A SUBJECT	61/892848	10/18/2013	Expired			UMBARGER, Mark; PORRECA, Gregory
GSGE-019/01EP	METHODS FOR ASSESSING A GENOMIC REGION OF A SUBJECT	14853307.8	10/13/2014	Abandoned			UMBARGER, Mark; PORRECA, Gregory
GSGE-019/01WO	METHODS FOR ASSESSING A GENOMIC REGION OF A SUBJECT	PCT/US2014/060256	10/13/2014	NAT PHASE			UMBARGER, Mark; PORRECA, Gregory
GSGE-020/00US	METHODS FOR COPY NUMBER DETERMINATION	61/892856	10/18/2013	Expired			UMBARGER, Mark
GSGE-020/01WO	METHODS FOR COPY NUMBER DETERMINATION	PCT/US2014/061138	10/17/2014	NAT PHASE			UMBARGER, Mark
GSGE-021/00US	ASSAY DESIGNS FOR SENSITIVITY AND SPECIFICITY	14/132339	12/18/2013	Abandoned			GREGOR, Valerie; PORRECA, Gregory
GSGE-022/00US	A METHOD TO CORRECT ESTIMATED COPY NUMBER VARIATION BY ACCOUNTING FOR CELLULAR DNA CONTENT	61/991839	5/12/2014	Expired			GORE, Athurva
GSGE-022/01US	METHOD FOR DETECTING ANEUPLOIDY	14/710229	5/12/2015	Published			GORE, Athurva

PATENT

REEL: 050454 FRAME: 0585

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-022/01WO	METHOD FOR DETECTING ANEUPLOIDY	PCT/US2015/030366	5/12/2015	Closed			GORE, Athurva
GSGE-023/00US	METHODS FOR SELECTIVELY SUPPRESSING NON-TARGET SEQUENCES	62/048452	9/10/2014	Expired			GOLE, Jeff; GORE, Athurva; UMBARGER, Mark
GSGE-023/01WO	METHODS FOR SELECTIVELY SUPPRESSING NON-TARGET SEQUENCES	PCT/US2015/049132	9/9/2015	Closed			GOLE, Jeff; GORE, Athurva
GSGE-024/00US	SYSTEMS AND METHODS FOR GENETIC ANALYSIS	62/037861	8/15/2014	Expired			FRIEDEN, Alexander; KENNEDY, Caleb; HAURIE, Xavier S.
GSGE-024/01US	SYSTEMS AND METHODS FOR GENETIC ANALYSIS	14/826595	8/14/2015	Published			FRIEDEN, Alexander; KENNEDY, Caleb; HAURIE, Xavier S.
GSGE-024/01WO	SYSTEMS AND METHODS FOR GENETIC ANALYSIS	PCT/US2015/045247	8/14/2015	NAT PHASE			FRIEDEN, Alexander; KENNEDY, Caleb; HAURIE, Xavier S.
GSGE-026/00US	PROCESS CONTROL FOR INCREASED ROBUSTNESS OF GENETIC ASSAYS	62/054725	9/24/2014	Expired			BOYDEN, Eric D.
GSGE-026/01CA	PROCESS CONTROL FOR INCREASED ROBUSTNESS OF GENETIC ASSAYS	2999708	9/18/2015	Published			BOYDEN, Eric D.
GSGE-026/01EP	PROCESS CONTROL FOR INCREASED ROBUSTNESS OF GENETIC ASSAYS	15844985	9/18/2015	Published			BOYDEN, Eric D.

PATENT

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-026/01JP	PROCESS CONTROL FOR INCREASED ROBUSTNESS OF GENETIC ASSAYS	2017-516096	9/18/2015	Published			BOYDEN, Eric D.
GSGE-026/01US	PROCESS CONTROL FOR INCREASED ROBUSTNESS OF GENETIC ASSAYS	14/858637	9/18/2015	Published			BOYDEN, Eric D.
GSGE-026/01WO	PROCESS CONTROL FOR INCREASED ROBUSTNESS OF GENETIC ASSAYS	PCT/US2015/050964	9/18/2015	NAT PHASE			BOYDEN, Eric D.
GSGE-027/00US	CARRIER SCREENING	62/060907	10/7/2014	Expired			GREGOR, Valerie
GSGE-028/00US	SCREENING FOR STRUCTURAL VARIANTS	62/100254	1/6/2015	Expired			GORE, Athurva; UMBARGER, Mark
GSGE-028/01CA	SCREENING FOR STRUCTURAL VARIANTS	3010579	1/6/2016	Published			GORE, Athurva; UMBARGER, Mark
GSGE-028/01EP	SCREENING FOR STRUCTURAL VARIANTS	16735337.4	1/6/2016	Published			GORE, Athurva; UMBARGER, Mark
GSGE-028/01WO	SCREENING FOR STRUCTURAL VARIANTS	PCT/US2016/012286	1/6/2016	NAT PHASE			GORE, Athurva; UMBARGER, Mark
GSGE-028/02US	SCREENING FOR STRUCTURAL VARIANTS	16/117248	8/30/2018	Pending			GORE, Athurva; UMBARGER, Mark
GSGE-029/00US	PRE-IMPLANTATION GENETIC SCREENING AND ANEUPLOIDY DETECTION	62/065322	10/17/2014	Expired			PORRECA, Gregory
GSGE-029/01CA	PRE-IMPLANTATION GENETIC SCREENING AND ANEUPLOIDY DETECTION	3002133	10/16/2015	Published			PORRECA, Gregory
GSGE-029/01EP	PRE-IMPLANTATION GENETIC SCREENING AND ANEUPLOIDY DETECTION	15850267.4	10/16/2015	Published			PORRECA, Gregory

PATENT

REEL: 050454 FRAME: 0587

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-029/01JP	PRE-IMPLANTATION GENETIC SCREENING AND ANEUPLOIDY DETECTION	2017-520484	10/16/2015	Published			PORRECA, Gregory
GSGE-029/01US	PRE-IMPLANTATION GENETIC SCREENING AND ANEUPLOIDY DETECTION	14/886858	10/19/2015	Published			PORRECA, Gregory
GSGE-029/01WO	PRE-IMPLANTATION GENETIC SCREENING AND ANEUPLOIDY DETECTION	PCT/US2015/056037	10/16/2015	NAT PHASE			PORRECA, Gregory
GSGE-030/00US	DEVICES AND SYSTEMS FOR BARCODING INDIVIDUAL WELLS AND VESSELS	62/103716	1/15/2015	Expired			PORRECA, Gregory; UMBARGER, Mark; GORE, Athurva
GSGE-030/01CA	DEVICES AND SYSTEMS FOR BARCODING INDIVIDUAL WELLS AND VESSELS	3011035	1/13/2016	Published			PORRECA, Gregory; UMBARGER, Mark; GORE, Athurva
GSGE-030/01EP	DEVICES AND SYSTEMS FOR BARCODING INDIVIDUAL WELLS AND VESSELS	16737776.1	1/13/2016	Published			PORRECA, Gregory; UMBARGER, Mark; GORE, Athurva
GSGE-030/01JP	DEVICES AND SYSTEMS FOR BARCODING INDIVIDUAL WELLS AND VESSELS	2017-537392	1/13/2016	Published			PORRECA, Gregory; UMBARGER, Mark; GORE, Athurva
GSGE-030/01US	DEVICES AND SYSTEMS FOR BARCODING INDIVIDUAL WELLS AND VESSELS	14/994325	1/13/2016	Granted	10061953	8/28/2018	PORRECA, Gregory; UMBARGER, Mark; GORE, Athurva
GSGE-030/01USD	DEVICES FOR BARCODING INDIVIDUAL WELLS AND VESSELS	29/518525	2/24/2015	Granted	D773070	11/29/2016	PORRECA, Gregory; UMBARGER, Mark; GORE, Athurva
GSGE-030/01WO	DEVICES AND SYSTEMS FOR BARCODING INDIVIDUAL WELLS AND VESSELS	PCT/US2016/013143	1/13/2016	NAT PHASE			PORRECA, Gregory; UMBARGER, Mark; GORE, Athurva

PATENT

REEL: 050454 FRAME: 0588

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-030/02US	DEVICES AND SYSTEMS FOR BARCODING INDIVIDUAL WELLS AND VESSELS	16/111909	5/24/2018	Pending			PORRECA, Gregory; UMBARGER, Mark; GORE, Athurva
GSGE-031/00US	METHODS OF QUALITY CONTROL USING SINGLE-NUCLEOTIDE POLYMORPHISMS IN PRE-IMPLANTATION GENETIC SCREENING	62/103802	1/15/2015	Expired			UMBARGER, Mark; GORE, Athurva; PORRECA, Gregory
GSGE-031/01CA	METHODS OF QUALITY CONTROL USING SINGLE-NUCLEOTIDE POLYMORPHISMS IN PRE-IMPLANTATION GENETIC SCREENING	3011029	1/14/2016	Published			UMBARGER, Mark; GORE, Athurva; PORRECA, Gregory
GSGE-031/01EP	METHODS OF QUALITY CONTROL USING SINGLE-NUCLEOTIDE POLYMORPHISMS IN PRE-IMPLANTATION GENETIC SCREENING	16737857.9	1/14/2016	Published			UMBARGER, Mark; GORE, Athurva; PORRECA, Gregory
GSGE-031/01JP	METHODS OF QUALITY CONTROL USING SINGLE-NUCLEOTIDE POLYMORPHISMS IN PRE-IMPLANTATION GENETIC SCREENING	2017-537258	1/14/2016	Published			UMBARGER, Mark; GORE, Athurva; PORRECA, Gregory
GSGE-031/01US	METHODS OF QUALITY CONTROL USING SINGLE-NUCLEOTIDE POLYMORPHISMS IN PRE-IMPLANTATION GENETIC SCREENING	14/995354	1/14/2016	Published			UMBARGER, Mark; GORE, Athurva; PORRECA, Gregory

PATENT

REEL: 050454 FRAME: 0589

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-031/01WO	METHODS OF QUALITY CONTROL USING SINGLE-NUCLEOTIDE POLYMORPHISMS IN PRE-IMPLANTATION GENETIC SCREENING	PCT/US2016/013346	1/14/2016	NAT PHASE			UMBARGER, Mark; GORE, Athurva; PORRECA, Gregory
GSGE-032/00US	PRENATAL ANEUPLOIDY TESTING THROUGH COMPRESSED GENOME SEQUENCING OF MATERNAL PLASMA	61/615535	3/26/2012	WATCHING			VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Isaac G.
GSGE-032/00US2	PRENATAL ANEUPLOIDY TESTING THROUGH COMPRESSED GENOME SEQUENCING OF MATERNAL PLASMA	61/659695	6/14/2012	WATCHING			VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Isaac G.
GSGE-032/01AU	RAPID ANEUPLOIDY DETECTION	2013240088	3/22/2013	WATCHING	2013240088	3/22/2013	VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Beaumont
GSGE-032/01CA	RAPID ANEUPLOIDY DETECTION	2868836	3/22/2013	WATCHING			VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Isaac G.

**PATENT**

REEL: 050454 FRAME: 0590



Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-032/01CN	RAPID ANEUPLOIDY DETECTION	201380026625.9	3/22/2013	WATCHING			VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Beaumont
GSGE-032/01EP	RAPID ANEUPLOIDY DETECTION	13768366	3/22/2013	WATCHING			VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Isaac G.
GSGE-032/01IL	RAPID ANEUPLOIDY DETECTION	234850	3/22/2013	WATCHING			VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Beaumont
GSGE-032/01US	RAPID ANEUPLOIDY DETECTION	14/388314	9/26/2014	WATCHING	10053729	8/21/2018	VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Isaac G.

PATENT

REEL: 050454 FRAME: 0591

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-032/01WO	RAPID ANEUPLOIDY DETECTION	PCT/US2013/033451	3/22/2013	WATCHING			VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Isaac G.; KAGAN, Sarah A.
GSGE-032/02CN	RAPID ANEUPLOIDY DETECTION	2017102870879	3/22/2013	WATCHING			VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Beaumont
GSGE-032/02US	RAPID ANEUPLOIDY DETECTION	14/792716	7/7/2015	WATCHING			VOGELSTEIN, Bert; KINZLER, Kenneth W.; PAPADOPOULOS, Nickolas; KINDE, Beaumont
GSGE-033/00US	SYSTEMS AND METHODS FOR GENETIC SCREENING	62/219408	9/16/2015	Expired			ADAMS, Mark
GSGE-033/01EP	SYSTEMS AND METHODS FOR GENETIC TESTING	16847290	9/15/2016	Published			ADAMS, Mark
GSGE-033/01JP	SYSTEMS AND METHODS FOR GENETIC TESTING	2018-513826	9/15/2016	Pending			ADAMS, Mark
GSGE-033/01US	SYSTEMS AND METHODS FOR GENETIC TESTING	15/266717	9/15/2016	Published			ADAMS, Mark
GSGE-033/01WO	SYSTEMS AND METHODS FOR GENETIC TESTING	PCT/US2016/051928	9/15/2016	Published			ADAMS, Mark

**PATENT**

REEL: 050454 FRAME: 0592

Docket Reference	Title	Application Number	Filing Date	Status	Patent Number	Issue Date	Inventor(s)
GSGE-034/00US	SAMPLE RETRIEVAL AND GENETIC ANALYSIS THEREOF	62/219437	9/16/2015	Expired			LUBER, Jeffrey
GSGE-034/01US	SAMPLE RETRIEVAL AND GENETIC ANALYSIS THEREOF	15/266726	9/15/2016	Published			LUBER, Jeffrey
GSGE-035/00US	VARIANT DETECTION OF SEQUENCING ASSAYS	62/292096	2/5/2016	Expired			GORE, Athurva; TSUNG, Eric; PORRECA, Gregory
GSGE-035/01US	VARIANT DETECTION OF SEQUENCING ASSAYS	16/074370	7/31/2018	Pending			GORE, Athurva; TSUNG, Eric; PORRECA, Gregory
GSGE-035/01WO	VARIANT DETECTION OF SEQUENCING ASSAYS	PCT/US2017/016498	2/3/2017	NAT PHASE			GORE, Athurva; TSUNG, Eric; PORRECA, Gregory
GSGE-037/00US	GENOMIC ANALYSIS OF CORD BLOOD	62/371175	8/4/2016	Expired			PORRECA, Gregory; LAPIDUS, Stanley
GSGE-037/01WO	GENOMIC ANALYSIS OF CORD BLOOD	PCT/US2017/043745	7/25/2017	Published			PORRECA, Gregory; LAPIDUS, Stanley

PATENT

REEL: 050454 FRAME: 0593

RECORDED: 09/11/2019