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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	05/03/2022	11319596	N.012.US.10	1764

110711 7590 04/13/2022

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site http://pair.uspto.gov for additional inventors):

Joshua BABIARZ, Castro Valley, CA;
Tudor Pompiliu CONSTANTIN, Berkeley, CA;
Lane A. EUBANK, San Carlos, CA;
George GEMELOS, Portland, OR;
Matthew Micah HILL, Belmont, CA;

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Natera, Inc., San Carlos, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

110711 7590 03/30/2022

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

EXAMINER	
STRZELECKA, TERESA E	

ART UNIT	PAPER NUMBER
1637	

NOTIFICATION DATE	DELIVERY MODE
03/30/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IP@natera.com

Notice of Allowability	Application No. 16/288,351	Applicant(s) BABIARZ et al.	
	Examiner TERESA E STRZELECKA	Art Unit 1637	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to IDS filed March 8, 2022.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are See Continuation Sheet . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 3/8/22.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/TERESA E STRZELECKA/
Primary Examiner, Art Unit 1637

Continuation of 3. The allowed claim(s) is/are: 1-2,4,6-7,9-13,15 and 18-24

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

2. This office action is in response to an IDS filed March 8, 2022, which crossed in mail with a Notice of Allowance which was submitted for a count on March 7, 2022 and mailed on March 14, 2022. Claims 1, 2, 4, 6, 7, 9-13, 15 and 18-24 were previously allowed.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on March 8, 2022 was filed after the mailing date of the Notice of Allowance on September 15, 2021. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

4. The IDs does not contain references teaching or suggesting the previously allowed claims, therefore they remain allowed.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TERESA E STRZELECKA whose telephone number is (571)272-0789. The examiner can normally be reached M-F 9-7.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TERESA E STRZELECKA/
Primary Examiner, Art Unit 1637
March 21, 2022

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

CPC						
Symbol					**Type**	**Version**
C12Q	/	1	/	6886	F	2013-01-01
G06N	/	7	/	005	I	2013-01-01
G06N	/	20	/	00	I	2019-01-01
G16B	/	15	/	00	I	2019-02-01
G16B	/	20	/	00	I	2019-02-01
G16B	/	20	/	10	I	2019-02-01
G16B	/	20	/	20	I	2019-02-01
G16B	/	25	/	00	I	2019-02-01
G16B	/	40	/	00	I	2019-02-01
G16B	/	40	/	20	I	2019-02-01
G16H	/	10	/	40	I	2018-01-01
G16H	/	50	/	20	I	2018-01-01
G16Z	/	99	/	00	I	2019-02-01
C12Q	/	1	/	6869	I	2013-01-01
G16B	/	25	/	20	A	2019-02-01
C12Q	/	2539	/	10	A	2013-01-01
C12Q	/	2600	/	156	A	2013-01-01
C12Q	/	2600	/	158	A	2013-01-01
C12Q	/	2600	/	16	A	2013-01-01
C12Q	/	2600	/	172	A	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/TERESA E STRZELECKA/ Primary Examiner, Art Unit 1637	21 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	None

U.S. Patent and Trademark Office — Part of Paper No.: 20220321

NeoGenomics
Exhibit 1003 Page 7

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

INTERNATIONAL CLASSIFICATION				
CLAIMED				
C12Q1/6886	/	1	/	6886
C12Q1/6869	/	1	/	6869
G16B20/20	/	20	/	20

NON-CLAIMED				
G06N20/00	/	20	/	00
G16B15/00	/	15	/	00
G16B25/00	/	25	/	00
G16B40/00	/	40	/	00
G16B40/20	/	40	/	20
G16B20/10	/	20	/	10
G16B20/00	/	20	/	00
G16Z99/00	/	99	/	00
G16H50/20	/	50	/	20
G06N7/00	/	7	/	00
G16H10/40	/	10	/	40
G16B25/20	/	25	/	20

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/TERESA E STRZELECKA/ Primary Examiner, Art Unit 1637	21 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	None

U.S. Patent and Trademark Office — Part of Paper No.: 20220321

NeoGenomics
Exhibit 1003 Page 8

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/TERESA E STRZELECKA/ Primary Examiner, Art Unit 1637	21 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	None

U.S. Patent and Trademark Office Part of Paper No.: 20220321

NeoGenomics
Exhibit 1003 Page 9

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	Art Unit
	TERESA E STRZELECKA	1637

CPC - Searched*		
Symbol	**Date**	**Examiner**
C12Q1/6869 |C12Q2600/156 | G16B20/20 plus text search	12/22/2020	/TS/
C12Q1/6869 | C12Q2600/156 |C12Q2600/16 | G16B20/20 plus text search	09/07/2021	/TS/
C12Q1/6869 |C12Q2600/156 | C12Q2600/16 plus text search	03/07/2022	/TS/

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	Art Unit
	TERESA E STRZELECKA	1637

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor name search	06/08/2020	/TS/
WEST	06/10/2020	/TS/
IDS (10/24/19; 3/10/20; 4/20/20; 5/4/20)	06/10/2020	/TS/
Pubmed	06/10/2020	/TS/
IDS (11/16/20)	12/18/2020	/TS/
Google	12/22/2020	/TS/
WEST	12/22/2020	/TS/
Inventor name search	09/07/2021	/TS/
Google	09/07/2021	/TS/
WEST	09/07/2021	/TS/
Inventor name search	03/03/2022	/TS/
Google	03/07/2022	/TS/
WEST	03/07/2022	/TS/
IDS (3/8/22)	03/21/2022	/TS/
WEST	03/21/2022	/TS/

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	C12Q1/6869 | C12Q2600/156 |C12Q2600/16 | G16B20/20 plus text search	09/07/2021	/TS/
	C12Q1/6869 |C12Q2600/156 | C12Q2600/16 plus text search	03/07/2022	/TS/

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/10/2020	12/23/2020	09/08/2021	03/07/2022	03/21/2022				
	1	✓	✓	=	=	=				
	2	✓	✓	=	=	=				
	3	✓	✓	-	-	-				
	4	N	N	=	=	=				
	5	✓	-	-	-	-				
	6	N	N	=	=	=				
	7	✓	✓	=	=	=				
	8	✓	-	-	-	-				
	9	N	N	=	=	=				
	10	N	N	=	=	=				
	11	✓	✓	=	=	=				
	12	✓	✓	=	=	=				
	13	N	N	=	=	=				
	14	✓	✓	-	-	-				
	15	✓	✓	=	=	=				
	16	✓	✓	-	-	-				
	17	N	N	-	-	-				
	18	N	N	=	=	=				
	19	N	N	=	=	=				
	20	✓	✓	=	=	=				
	21	N	N	=	=	=				
	22	N	N	=	=	=				
	23	✓	✓	=	=	=				
	24	✓	✓	=	=	=				
	25		✓	-	-					
	26		✓	-	-					

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/288,351
	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

U.S. PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		11130995	B2	2021-09-28	QUAKE, S. et al.	

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		20100273159	A1	2010-10-28	Melo, Francisco	
		20110312503	A1	2011-12-22	CHUU, Y.-J. et al.	
		20150086477	A1	2015-03-26	MITCHELL, A. T., et al.	
		20150322507	A1	2015-11-12	ZIMMERMANN, B. et al.	
		20180023128	A1	2018-01-25	YANAI, I. et al.	
		20150329891	A1	2022-01-21	TAN, Y. C., et al.	
		20220025455	A1	2022-01-27	ZIMMERMANN, B. et al.	
		20220025456	A1	2022-01-27	RABINOWITZ, M. et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.E.S/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

		20220033908	A1	2022-02-03	RABINOWITZ, M. et al.	
		20220033909	A1	2022-02-03	BABIARZ, J. et al.	
		20220042103	A1	2022-02-10	RABINOWITZ, M. et al.	
		20220056509	A1	2022-02-24	ZIMMERMANN, Bernhard	
		20220056534	A1	2022-02-24	RIVERS, Elizabeth	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]
		2014/150300	WO	A2	2014-09-25	HUANG, S. X., et al.		
		104736722	CN	A	2015-06-24	HEAD, S. R., et al.		
		105229175	CN	A	2016-01-06	HUANG, S. X., et al.		
		2016009224	WO	A1	2016-01-21	Rosenfeld, Nitzan et al.		
		2018/237081	WO	A1	2018-12-27	MITCHELL, A. T., et al.		
		2022/015676	WO	A1	2022-01-20	MITCHELL, A. T., et al.		

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.E.S/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

		3443119	EP	B1	2022-02-23	ZIMMERMANN, B. et al.		

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
		GONCALVES-PRIMO, A. et al., "Investigation of Apoptosis-Related Gene Expression Levels in Preimplantation Biopsies as Predictors of Delayed Kidney Graft Function", Transplantation, Vol. 97, No. 12, 27 JUN 2014,	
		NAKAMURA, N. et al., "Ex Vivo Liver Perfusion with Arterial Blood from A Pig with Ischemic Liver Failure", Artificial Organs, Vol. 23, No. 2, 1999, 153-160	
		NUI, A. et al., "The Functional Integrity of a Normothermic Perfusion System Using Artificial Blood in Pig Liver", Journal of Surgical Research, Vo. 131, 2006, 189-198	
		OLERUP, O. et al., "HLA-DR typing by PCR amplification with sequence-specific primers (PCR-SSP) in 2 hours: an alternative to serological DR typing in clinical practice including donor-recipient matching in cadaveric transplantation", Tissue Antigens, Vol. 39, No. 5, MAY 1992, 225-235	
		PARUZYNSKI, A. et al., "Genome-wide high-throughput integrome analyses by nrLAM-PCR and next-generation sequencing", Nature Protocols, Vol. 5, No. 8, 8 JUL 2010, 1379-1395	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.E.S/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

EXAMINER SIGNATURE

Examiner Signature	/TERESA E STRZELECKA/	Date Considered	03/21/2022

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

The submission of this Information Disclosure Statement does not constitute an admission that a search was made, does not constitute an admission that any information cited is prior art, and does not constitute an admission that no other or better art exists.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.E.S/

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/288,351
	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Tianran Yan/	Date (YYYY-MM-DD)	2022-03-08
Name/Print	Tianran Yan	Registration Number	67,162

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

/TERESA E STRZELECKA/ 03/21/2022

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.E.S/

WEST Search History for Application 16288351

Creation Date: 2022032113:41

Interference Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
(cell-free or cell free or circulat $ 8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex $ 7 near3 (PCR or amplif $ 8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB, USPT	387	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat $ 8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex $ 7 near3 (PCR or amplif $ 8) and (limit of detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB, USPT	28	ADJ	YES	ASSIGNEE	09-07-2021
(ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex $ 8 near3 (PCR or amplif $ 8) and (cell-free or cell free or circulat $ 8) near3 (DNA or nucleic) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16).CPC.)	PGPB, USPT	505	ADJ	YES	ASSIGNEE	03-07-2022

Prior Art Searches

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NeoGenomics
Exhibit 1003 Page 27

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US-20160289753-$ | US-20160312276-$ |						

US-20160319345-$ | US-20160145682-$ | US-20160369333-$ | US-20170121716-$ | US-20170342477-$ | US-20180148777-$).DID.						
((US-20060210997-$ | US-20060216738-$ | US-20060281105-$ | US-20070020640-$ | US-20070042384-$ | US-20070128624-$ | US-20070027636-$ | US-20070059707-$ | US-20070122805-$ | US-20070178478-$ | US-20070178501-$ | US-20070184467-$ | US-20070202525-$ | US-20070202536-$ | US-20070207466-$ | US-20070212689-$ | US-20070243549-$ | US-20070259351-$ | US-20080090239-$ | US-20080138809-$ | US-20080220422-$ | US-20080020390-$ | US-20080026390-$ | US-20080038733-$ | US-20080070792-$ | US-20080071076-$ | US-20080085836-$ | US-20080096766-$ | US-20080102455-$ | US-20080182244-$ | US-20080193927-$ | US-20080234142-$ | US-20080243398-$ | US-20080305473-$ | US-20090143570-$ | US-20090023190-$ | US-20090029377-$ | US-20090087847-$ | US-20090098534-$ | US-20090099041-$ | US-20090176662-$ | US-20090221620-$ | US-20090317817-$ | US-20100129874-$ | US-20100273678-$ | US-20100035232-$ | US-20100112575-$ | US-20100112590-$ | US-20100120038-$ | US-20100124751-$ | US-20100138165-$ | US-20100171954-$ | US-20100184069-$ | US-20100184152-$ | US-20100196892-$ | US-20100203538-$ | US-20100216153-$ | US-20100248231-$ | US-20100255492-$ | US-20100256013-$ | US-20100285537-$ | US-20100291572-$ | US-20100291635-$ | US-20100323352-$ | US-20110071031-$ | US-20110159499-$ | US-20110160078-$ | US-20110033862-$ | US-20110039724-$ | US-20110086769-$ | US-20110092763-$ | US-20110105353-$ | US-20110151442-$ | US-20110178719-$ | US-20110201507-$ | US-20110224087-$ | US-20110246083-$ | US-20110251149-$ | US-20110288780-$ | US-20110300608-$ | US-20110318734-$ | US-20120010085-$ | US-20120295819-$ | US-20120003635-$ | US-20120034603-$ | US-20120122701-$ | US-20120165203-$ | US-20120185176-$ | US-20120190020-$ | US-20120190021-$ | US-20120191358-$ | US-20120196754-$ | US-20120214678-$ | US-20120264121-$ |	PGPB	14	ADJ	YES	ASSIGNEE	06-10-2020

US-20120270212-$ | US-20130116130-$ | US-20130130923-$ | US-20130017549-$ | US-20130024127-$ | US-20130034546-$ | US-20130060483-$ | US-20130069869-$ | US-20130090250-$ | US-20130123120-$ | US-20130178373-$ | US-20130190653-$ | US-20130196862-$ | US-20130210644-$ | US-20130225422-$ | US-20130252824-$ | US-20130253369-$ | US-20130261004-$ | US-20130274116-$ | US-20130303461-$ | US-20130323731-$ | US-20130325360-$ | US-20140038830-$ | US-20140227705-$ | US-20140256558-$ | US-20140272956-$ | US-20140287934-$ | US-20140032128-$ | US-20140051585-$ | US-20140065621-$ | US-20140087385-$ | US-20140094373-$ | US-20140100126-$ | US-20140100134-$ | US-20140141981-$ | US-20140154682-$ | US-20140155274-$ | US-20140162269-$ | US-20140193816-$ | US-20140206552-$ | US-20140256569-$ | US-20140329245-$ | US-20140336060-$ | US-20150197786-$ | US-20150265995-$ | US-20150051087-$ | US-20150064695-$ | US-20150147815-$ | US-20150232938-$ | US-20160201124-$ | US-20160257993-$ | US-20160289740-$ | US-20160289753-$ | US-20160312276-$ | US-20160319345-$ | US-20160145682-$ | US-20160369333-$ | US-20170121716-$ | US-20170342477-$ | US-20180148777-$).DID.) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
(US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ | US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$).DID.	PGPB	23	ADJ	YES	ASSIGNEE	06-10-2020
((US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ |	PGPB	7	ADJ	YES	ASSIGNEE	06-10-2020

US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$).DID.) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
(US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ | US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$ | US-20190211391-$ | US-20190211392-$ | US-20190211393-$ | US-20190211399-$ | US-20190211402-$ | US-20190211406-$ | US-20190249241-$ | US-20190256906-$ | US-20190256907-$ | US-20190256909-$ | US-20190256916-$ | US-20190256917-$ | US-20190264277-$ | US-20190264280-$ | US-20190264288-$ | US-20190271043-$ | US-20190276888-$ | US-20190284623-$ | US-20190300950-$ | US-20190309358-$ | US-20190309359-$ | US-20190309365-$ | US-20190316184-$).DID.	PGPB	46	ADJ	YES	ASSIGNEE	06-10-2020
((US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ | US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$ | US-20190211391-$ | US-20190211392-$ | US-20190211393-$ | US-20190211399-$ | US-20190211402-$ | US-20190211406-$ | US-20190249241-$ | US-20190256906-$ | US-20190256907-$ |	PGPB	10	ADJ	YES	ASSIGNEE	06-10-2020

US-20190256909-$ | US-20190256916-$ | US-20190256917-$ | US-20190264277-$ | US-20190264280-$ | US-20190264288-$ | US-20190271043-$ | US-20190276888-$ | US-20190284623-$ | US-20190300950-$ | US-20190309358-$ | US-20190309359-$ | US-20190309365-$ | US-20190316184-$).DID.) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
("10081839" | "10083273" | "10308981" | "10316362").pn.	PGPB	0	ADJ	YES	ASSIGNEE	06-10-2020
("10081839" | "10083273" | "10308981" | "10316362").pn.	USPT	4	ADJ	YES	ASSIGNEE	06-10-2020
("20010051341" | "20010053519" | "20020006622" | "20020107640" | "20030009295" | "20030065535" | "20030077586" | "20030101000" | "20030119004" | "20030228613" | "20040033596" | "20040137470" | "20040146866" | "20040157243" | "20040197797" | "20040209299" | "20040229231" | "20040236518" | "20040259100" | "20050009069" | "20050049793" | "20050053950" | "20050079535" | "20050123914" | "20050130173" | "20050142577" | "20050144664" | "20050164241" | "20050216207" | "20050221341" | "20050227263" | "20050250111" | "20050255508" | "20050272073" | "20060019278" | "20060040300" | "20060052945" | "20060057618" | "20060068394" | "20060088574" | "20060099614" | "20060121452" | "20060134662" | "20060141499" | "20060210997" | "20060216738" | "20060229823" | "20060248031" | "20060281105").PN.	PGPB	49	ADJ	YES	ASSIGNEE	06-10-2020
(("20010051341" | "20010053519" | "20020006622" | "20020107640" | "20030009295" | "20030065535" | "20030077586" | "20030101000" | "20030119004" | "20030228613" | "20040033596" | "20040137470" | "20040146866" | "20040157243" | "20040197797" | "20040209299" | "20040229231" | "20040236518" |	PGPB	3	ADJ	YES	ASSIGNEE	06-10-2020

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"20040259100" | "20050009069" | "20050049793" | "20050053950" | "20050079535" | "20050123914" | "20050130173" | "20050142577" | "20050144664" | "20050164241" | "20050216207" | "20050221341" | "20050227263" | "20050250111" | "20050255508" | "20050272073" | "20060019278" | "20060040300" | "20060052945" | "20060057618" | "20060068394" | "20060088574" | "20060099614" | "20060121452" | "20060134662" | "20060141499" | "20060210997" | "20060216738" | "20060229823" | "20060248031" | "20060281105").PN.) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
Natera.asn. and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and progress$8	PGPB	27	ADJ	YES	ASSIGNEE	06-10-2020
Natera.asn. and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and progress$8	USPT	12	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)	PGPB	141	ADJ	YES	ASSIGNEE	06-10-2020
((cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)) and tumor near3 heterogen$8	PGPB	72	ADJ	YES	ASSIGNEE	06-10-2020
((cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)) and tumor near3 heterogen$8	PGPB	72	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or	USPT	70	ADJ	YES	ASSIGNEE	06-10-2020

tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)						
((cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)) and tumor near3 heterogen$8	USPT	22	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)	PGPB	141	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)	DWPI	6	ADJ	YES	ASSIGNEE	06-10-2020
US-20150087535-A1.did.	PGPB	1	ADJ	YES	ASSIGNEE	06-10-2020
("10179937" | "10597708" | "10711309" | "10731220" | "10774380" | "10793912" | "20040009518" | "20110130558" | "20120270739" | "20150315657" | "20160244838" | "20170107576" | "20200181697" | "20200190570" | "20200190573" | "20200190591" | "20200208196" | "20200208221" | "20200224273" | "20200232036" | "20200232037" | "20200248264" | "20200248266" | "20200318191" | "20200347454" | "20200350034" | "6927028" | "7410764").PN.	PGPB, USPT	28	ADJ	YES	ASSIGNEE	12-22-2020
Guardant Health.asn. and (cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8	PGPB	3	ADJ	YES	ASSIGNEE	12-22-2020
14/425589.app.	PGPB	1	ADJ	YES	ASSIGNEE	12-22-2020
14/425189.app.	PGPB	1	ADJ	YES	ASSIGNEE	12-22-2020
16/288351.app.	PGPB	1	ADJ	YES	ASSIGNEE	12-22-2020

(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	PGPB	48	ADJ	YES	ASSIGNEE	12-22-2020
(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	PGPB	48	ADJ	YES	ASSIGNEE	12-22-2020
(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	USPT	23	ADJ	YES	ASSIGNEE	12-22-2020
(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	DWPI	1	ADJ	YES	ASSIGNEE	12-22-2020
16/288351.app.	PGPB	1	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	202	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	202	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	USPT	185	ADJ	YES	ASSIGNEE	09-07-2021

(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	DWPI	1	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and limit of detection near5 0.01((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	0	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) near5 0.01((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	0	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) near5 0.01 and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	0	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	21	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	USPT	7	ADJ	YES	ASSIGNEE	09-07-2021

(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	DWPI	0	ADJ	YES	ASSIGNEE	09-07-2021
16/288351.app.	PGPB	1	ADJ	YES	ASSIGNEE	03-07-2022
(ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$8 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16).CPC.)	PGPB	708	ADJ	YES	ASSIGNEE	03-07-2022
((ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$8 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16).CPC.)) and (cell-free or cell free or circulat$8) near3 (DNA or nucleic)	PGPB	272	ADJ	YES	ASSIGNEE	03-07-2022
(ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$8 near3 (PCR or amplif$8) and (cell-free or cell free or circulat$8) near3 (DNA or nucleic) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16).CPC.)	USPT	233	ADJ	YES	ASSIGNEE	03-07-2022
(ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$8 near3 (PCR or amplif$8) and (cell-free or cell free or circulat$8) near3 (DNA or nucleic) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16).CPC.)	DWPI	1	ADJ	YES	ASSIGNEE	03-07-2022
("10017810" | "10041127" | "10061890" | "10174369" | "10227652" | "10240202" | "10392664" | "10450597" | "10522242" | "10894976" | "11111543" | "11111544" | "11111545" | "20020119478" | "20020182622" | "20030040620" |	PGPB, USPT	120	ADJ	YES	ASSIGNEE	03-07-2022

"20030044388" | "20030087276" | "20030138780" | "20030232353" | "20040096874" | "20040115629" | "20040126760" | "20040146866" | "20050043894" | "20050282185" | "20060051799" | "20060094010" | "20060216153" | "20060292599" | "20070037166" | "200720070134658200" | "20080280292" | "20080286783" | "20080299562" | "20090053719" | "200920090263800200902680" | "20090280479" | "20100041048" | "20100086914" | "20100105049" | "20100129792" | "20100173394" | "20100285478" | "20110294699" | "20120208706" | "20120264618" | "20130022973" | "20130085681" | "20140274740" | "20150211050" | "20150299812" | "20160046986" | "20160115541" | "20160186239" | "20160239602" | "20170011166" | "20170114411" | "20170152561" | "20170218458" | "20170275689" | "20170283788" | "20170314014" | "20170362649" | "20180187241" | "20180251553" | "20180288982" | "20190256924" | "20200032323" | "20200109449" | "20200316498" | "20200362415" | "20200407788" | "20200407798" | "20210009990" | "20210025005" | "20210054459" | "20210071246" | "20210139983" | "20210139988" | "20210155988" | "20210189498" | "20210198733" | "20210198742" | "20210198743" | "20210222230" | "20210222240" | "20210257048" | "20210324463" | "20210327538" | "20210327542" | "20210355536" | "4683195" | "4942124" | "5648220" | "5891734" | "5952170" | "5962223" | "6329179" | "6605451" | "6858412" | "7101663" | "7153656" | "7655399" | "7741463" | "7981609" | "8236503" | "8318434" | "8323897" | "8372584" | "8501409" | "8679741" | "8748103" | "9005894" | "9051602" | "9206475" | "9228234" | "9404150" | "9424392" | "9453257" | "9493828" | "9506119").PN.						
		99	ADJ	YES	ASSIGNEE	03-07-2022

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(("10017810" | "10041127" | "10061890" | "10174369" | "10227652" | "10240202" | "10392664" | "10450597" | "10522242" | "10894976" | "11111543" | "11111544" | "11111545" | "20020119478" | "20020182622" | "20030040620" | "20030044388" | "20030087276" | "20030138780" | "20030232353" | "20040096874" | "20040115629" | "20040126760" | "20040146866" | "20050043894" | "20050282185" | "20060051799" | "20060094010" | "20060216153" | "20060292599" | "20070037166" | "200720070134658200" | "20080280292" | "20080286783" | "20080299562" | "20090053719" | "200920090263800200902680" | "20090280479" | "20100041048" | "20100086914" | "20100105049" | "20100129792" | "20100173394" | "20100285478" | "20110294699" | "20120208706" | "20120264618" | "20130022973" | "20130085681" | "20140274740" | "20150211050" | "20150299812" | "20160046986" | "20160115541" | "20160186239" | "20160239602" | "20170011166" | "20170114411" | "20170152561" | "20170218458" | "20170275689" | "20170283788" | "20170314014" | "20170362649" | "20180187241" | "20180251553" | "20180288982" | "20190256924" | "20200032323" | "20200109449" | "20200316498" | "20200362415" | "20200407788" | "20200407798" | "20210009990" | "20210025005" | "20210054459" | "20210071246" | "20210139983" | "20210139988" | "20210155988" | "20210189498" | "20210198733" | "20210198742" | "20210198743" | "20210222230" | "20210222240" | "20210257048" | "20210324463" | "20210327538" | "20210327542" | "20210355536" | "4683195" | "4942124" | "5648220" | "5891734" | "5952170" | "5962223" | "6329179" | "6605451" | "6858412" | "7101663" | "7153656" | "7655399" | "7741463" | "7981609" | "8236503" | "8318434" | "8323897" | "8372584" | "8501409" | "8679741" |	PGPB, USPT					

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Exhibit 1003 Page 46

"8748103" | "9005894" | "9051602" | "9206475" | "9228234" | "9404150" | "9424392" | "9453257" | "9493828" | "9506119").PN.) and (mutation or polymorphism or SNP or SNV or variant) and sequencing						
(("10017810" | "10041127" | "10061890" | "10174369" | "10227652" | "10240202" | "10392664" | "10450597" | "10522242" | "10894976" | "11111543" | "11111544" | "11111545" | "20020119478" | "20020182622" | "20030040620" | "20030044388" | "20030087276" | "20030138780" | "20030232353" | "20040096874" | "20040115629" | "20040126760" | "20040146866" | "20050043894" | "20050282185" | "20060051799" | "20060094010" | "20060216153" | "20060292599" | "20070037166" | "200720070134658200" | "20080280292" | "20080286783" | "20080299562" | "20090053719" | "2009200902638002009026 80" | "20090280479" | "20100041048" | "20100086914" | "20100105049" | "20100129792" | "20100173394" | "20100285478" | "20110294699" | "20120208706" | "20120264618" | "20130022973" | "20130085681" | "20140274740" | "20150211050" | "20150299812" | "20160046986" | "20160115541" | "20160186239" | "20160239602" | "20170011166" | "20170114411" | "20170152561" | "20170218458" | "20170275689" | "20170283788" | "20170314014" | "20170362649" | "20180187241" | "20180251553" | "20180288982" | "20190256924" | "20200032323" | "20200109449" | "20200316498" | "20200362415" | "20200407788" | "20200407798" | "20210009990" | "20210025005" | "20210054459" | "20210071246" | "20210139983" | "20210139988" | "20210155988" | "20210189498" | "20210198733" | "20210198742" | "20210198743" | "20210222230" | "20210222240" | "20210257048" | "20210324463" | "20210327538" | "20210327542" |	PGPB, USPT	63	ADJ	YES	ASSIGNEE	03-07-2022

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Exhibit 1003 Page 47

"20210355536" | "4683195" | "4942124" | "5648220" | "5891734" | "5952170" | "5962223" | "6329179" | "6605451" | "6858412" | "7101663" | "7153656" | "7655399" | "7741463" | "7981609" | "8236503" | "8318434" | "8323897" | "8372584" | "8501409" | "8679741" | "8748103" | "9005894" | "9051602" | "9206475" | "9228234" | "9404150" | "9424392" | "9453257" | "9493828" | "9506119").PN. and (mutation or polymorphism or SNP or SNV or variant) and sequencing) and (ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare)						
("11130995" | "20100273159" | "20110312503" | "20150086477" | "20150322507" | "20150329891" | "20180023128" | "20220025455" | "20220025456" | "20220033908" | "20220033909" | "20220042103" | "20220056509" | "20220056534").PN.	PGPB, USPT	14	ADJ	YES	ASSIGNEE	03-21-2022

United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :C46472

Sale Accounting Date:03/21/2022

Sale Item Reference Number	Effective Date
16288351	03/18/2022

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I20223K938092228	1501	UTILITY APPL ISSUE FEE	$1,200.00	Deposit Account

United States Patent and Trademark Office

Office of the Chief Financial Officer

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User :C46472

Refund Accounting Date:03/21/2022

Effective Date	Sale Item Reference Number	Refund Total
12/15/2021	16288351	$1,200.00

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method	Account Number
I20223K935542207	1501	UTILITY APPL ISSUE FEE	$1,200.00	DA	506075



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Office of the Chief Financial Officer

Document Code:WFEE

User :C46472

Sale Adjustment Accounting Date:03/21/2022

Effective Date	Sale Accounting Date	Sale Item Reference Number
12/15/2021	03/21/2022	16288351

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I20223K935542207	1501	UTILITY APPL ISSUE FEE	$1,200.00	DA

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

110711 7590 03/14/2022

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

TITLE OF INVENTION: DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$1200.00	$0	06/14/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
STRZELECKA, TERESA E	1637	435-006120

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Natera, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): San Carlos, CA

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ☒ Corporation or other private group entity ❑ Government

4a. Fees submitted: ☒ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 506075

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Tianran Yan/ Date 3-18-2022

Typed or printed name Tianran Yan Registration No. 67,162

NeoGenomics
Exhibit 1003 Page 52

Electronic Acknowledgement Receipt

EFS ID:	45266960
Application Number:	16288351
International Application Number:	
Confirmation Number:	1764
Title of Invention:	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS
First Named Inventor/Applicant Name:	Joshua BABIARZ
Customer Number:	110711
Filer:	Anton John Bokal/Jeremy Johnston
Filer Authorized By:	Anton John Bokal
Attorney Docket Number:	N.012.US.10
Receipt Date:	18-MAR-2022
Filing Date:	28-FEB-2019
Time Stamp:	17:44:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	N012US10_Issue_Fee_Transmittal-SIGNED.pdf	177423 2795ce85bf93b1eb458a87f977b5678f6c4b71a2	no	1

Warnings:

Information:	
Total Files Size (in bytes):	177423

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Best Available Copy

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16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

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nonprovisional	UNDISCOUNTED	$1200	$0.00	$1200.00	$0	06/14/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
STRZELECKA, TERESA E	1637	435-006120

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2 _____
3 _____

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Authorized Signature /Tianran Yan/ Date 3-18-2022

Typed or printed name Tianran Yan Registration No. 67,162

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

NeoGenomics
Exhibit 1003 Page 55

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

110711 7590 03/14/2022

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

EXAMINER
STRZELECKA, TERESA E

ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 03/14/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

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nonprovisional	UNDISCOUNTED	$1200	$0.00	$1200.00	$0	06/14/2022

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

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Exhibit 1003 Page 56

PART B - FEE(S) TRANSMITTAL

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Alexandria, Virginia 22313-1450

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

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EXAMINER	ART UNIT	CLASS-SUBCLASS
STRZELECKA, TERESA E	1637	435-006120

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1 _____
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(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

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❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

NeoGenomics
Exhibit 1003 Page 57

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

110711 7590 03/14/2022

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

EXAMINER	
STRZELECKA, TERESA E	
ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 03/14/2022

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/288,351	Applicant(s) BABIARZ et al.	
	Examiner TERESA E STRZELECKA	Art Unit 1637	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to RCE filed 12 January 2022.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are See Continuation Sheet . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 1/12/22.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/TERESA E STRZELECKA/
Primary Examiner, Art Unit 1637

Continuation of 3. The allowed claim(s) is/are: 1-2,4,6-7,9-13,15 and 18-24

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on January 12, 2022 has been entered.

3. Claims 1, 2, 4, 6, 7, 9-13, 15 and 18-24 were previously pending and were allowed. Applicant did not amend any claims.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on January 12, 2022 was filed after the mailing date of the Notice of Allowance on September 15, 2021. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

5. No references cited in the IDS were found teaching or suggesting the instant claims. The reference of Kennedy et al. (Nature Protocols, vol. 9, pp. 2586-2606, 2014; cited in the IDS) teaches detection of mutations with frequencies around 10^{-6}, however, the protocol relies on sequencing both strands of DNA fragments which are amplified using barcode-specific primers and the libraries are enriched by hybridization, whereas the instant claims provide enrichment via

target-specific multiplex amplification, therefore the claimed method cannot be used for double-strand sequencing of Kennedy et al.

6. In conclusion, claims 1, 2, 4, 6, 7, 9-13, 15 and 18-24 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TERESA E STRZELECKA whose telephone number is (571)272-0789. The examiner can normally be reached M-F 9-7.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TERESA E STRZELECKA/
Primary Examiner, Art Unit 1637
March 7, 2022

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

CPC						
Symbol					**Type**	**Version**
C12Q	/	1	/	6886	F	2013-01-01
G06N	/	7	/	005	I	2013-01-01
G06N	/	20	/	00	I	2019-01-01
G16B	/	15	/	00	I	2019-02-01
G16B	/	20	/	00	I	2019-02-01
G16B	/	20	/	10	I	2019-02-01
G16B	/	20	/	20	I	2019-02-01
G16B	/	25	/	00	I	2019-02-01
G16B	/	40	/	00	I	2019-02-01
G16B	/	40	/	20	I	2019-02-01
G16H	/	10	/	40	I	2018-01-01
G16H	/	50	/	20	I	2018-01-01
G16Z	/	99	/	00	I	2019-02-01
C12Q	/	1	/	6869	I	2013-01-01
G16B	/	25	/	20	A	2019-02-01
C12Q	/	2539	/	10	A	2013-01-01
C12Q	/	2600	/	156	A	2013-01-01
C12Q	/	2600	/	158	A	2013-01-01
C12Q	/	2600	/	16	A	2013-01-01
C12Q	/	2600	/	172	A	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/TERESA E STRZELECKA/ Primary Examiner, Art Unit 1637	07 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	None

U.S. Patent and Trademark Office — Part of Paper No.: 20220307

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

INTERNATIONAL CLASSIFICATION				
CLAIMED				
C12Q1/6886	/	1	/	6886
C12Q1/6869	/	1	/	6869
G16B20/20	/	20	/	20

NON-CLAIMED				
G06N20/00	/	20	/	00
G16B15/00	/	15	/	00
G16B25/00	/	25	/	00
G16B40/00	/	40	/	00
G16B40/20	/	40	/	20
G16B20/10	/	20	/	10
G16B20/00	/	20	/	00
G16Z99/00	/	99	/	00
G16H50/20	/	50	/	20
G06N7/00	/	7	/	00
G16H10/40	/	10	/	40
G16B25/20	/	25	/	20

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 18	
/TERESA E STRZELECKA/ Primary Examiner, Art Unit 1637 (Primary Examiner) 07 March 2022 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure None

U.S. Patent and Trademark Office Part of Paper No.: 20220307

NeoGenomics
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/TERESA E STRZELECKA/ Primary Examiner, Art Unit 1637	07 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	None

U.S. Patent and Trademark Office — Part of Paper No.: 20220307

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Exhibit 1003 Page 67

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	Art Unit
	TERESA E STRZELECKA	1637

CPC - Searched*		
Symbol	**Date**	**Examiner**
C12Q1/6869 |C12Q2600/156 | G16B20/20 plus text search	12/22/2020	/TS/
C12Q1/6869 | C12Q2600/156 |C12Q2600/16 | G16B20/20 plus text search	09/07/2021	/TS/
C12Q1/6869 |C12Q2600/156 | C12Q2600/16 plus text search	03/07/2022	/TS/

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

NeoGenomics
Exhibit 1003 Page 68

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor name search	06/08/2020	/TS/
WEST	06/10/2020	/TS/
IDS (10/24/19; 3/10/20; 4/20/20; 5/4/20)	06/10/2020	/TS/
Pubmed	06/10/2020	/TS/
IDS (11/16/20)	12/18/2020	/TS/
Google	12/22/2020	/TS/
WEST	12/22/2020	/TS/
Inventor name search	09/07/2021	/TS/
Google	09/07/2021	/TS/
WEST	09/07/2021	/TS/
Inventor name search	03/03/2022	/TS/
Google	03/07/2022	/TS/
WEST	03/07/2022	/TS/

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	C12Q1/6869 | C12Q2600/156 |C12Q2600/16 | G16B20/20 plus text search	09/07/2021	/TS/
	C12Q1/6869 |C12Q2600/156 | C12Q2600/16 plus text search	03/07/2022	/TS/

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/10/2020	12/23/2020	09/08/2021	03/07/2022					
	1	✓	✓	=	=					
	2	✓	✓	=	=					
	3	✓	✓	-	-					
	4	N	N	=	=					
	5	✓	-	-	-					
	6	N	N	=	=					
	7	✓	✓	=	=					
	8	✓	-	-	-					
	9	N	N	=	=					
	10	N	N	=	=					
	11	✓	✓	=	=					
	12	✓	✓	=	=					
	13	N	N	=	=					
	14	✓	✓	-	-					
	15	✓	✓	=	=					
	16	✓	✓	-	-					
	17	N	N	-	-					
	18	N	N	=	=					
	19	N	N	=	=					
	20	✓	✓	=	=					
	21	N	N	=	=					
	22	N	N	=	=					
	23	✓	✓	=	=					
	24	✓	✓	=	=					
	25		✓	-	-					
	26		✓	-	-					

WEST Search History for Application 16288351

Creation Date: 2022030716:38

Interference Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
(cell-free or cell free or circulat $ 8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex $ 7 near3 (PCR or amplif $ 8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB, USPT	387	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat $ 8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex $ 7 near3 (PCR or amplif $ 8) and (limit of detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB, USPT	28	ADJ	YES	ASSIGNEE	09-07-2021
(ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex $ 8 near3 (PCR or amplif $ 8) and (cell-free or cell free or circulat $ 8) near3 (DNA or nucleic) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16).CPC.)	PGPB, USPT	505	ADJ	YES	ASSIGNEE	03-07-2022

Prior Art Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
("10260096" | "10266893" | "10597709" | "20200123612" | "20200126634").PN.	PGPB	2	ADJ	YES	ASSIGNEE	06-10-2020
("10260096" | "10266893" | "10597709" | "20200123612" | "20200126634").PN.	PGPB	n/a	ADJ	YES	ASSIGNEE	06-10-2020
("10260096" | "10266893" | "10597709" | "20200123612" | "20200126634").PN.	PGPB	2	ADJ	YES	ASSIGNEE	06-10-2020
(("10260096" | "10266893" | "10597709" | "20200123612" | "20200126634").PN.)	PGPB	2	ADJ	YES	ASSIGNEE	06-10-2020

("10260096" | "10266893" | "10597709" | "20200123612" | "20200126634").PN.	PGPB, USPT	5	ADJ	YES	ASSIGNEE	06-10-2020
("10351906" | "10526658" | "10538814" | "10557172" | "10597723" | "20070031857" | "20150087535" | "20160186253" | "5854033" | "6221603" | "6235472").PN.	PGPB, USPT	11	ADJ	YES	ASSIGNEE	06-10-2020
("20030211489" | "20050079521" | "20120034685" | "20120108460" | "20120295810" | "20190256894" | "20190256908" | "20190256912" | "20190256919" | "20190256931" | "20190323076" | "20190360036" | "20200024653").PN.	PGPB, USPT	13	ADJ	YES	ASSIGNEE	06-10-2020
("10081839" | "10083273" | "10308981" | "10316362" | "20010051341" | "20010053519" | "20020006622" | "20020107640" | "20030009295" | "20030065535" | "20030077586" | "20030101000" | "20030119004" | "20030228613" | "20040033596" | "20040137470" | "20040146866" | "20040157243" | "20040197797" | "20040209299" | "20040229231" | "20040236518" | "20040259100" | "20050009069" | "20050049793" | "20050053950" | "20050079535" | "20050123914" | "20050130173" | "20050142577" | "20050144664" | "20050164241" | "20050216207" | "20050221341" | "20050227263" | "20050250111" | "20050255508" | "20050272073" | "20060019278" | "20060040300" | "20060052945" | "20060057618" | "20060068394" | "20060088574" | "20060099614" | "20060121452" | "20060134662" | "20060141499" | "20060210997" | "20060216738" | "20060229823" | "20060248031" | "20060281105" | "20070020640" | "20070027636" | "20070042384" | "20070059707" | "20070122805" | "20070128624" | "20070178478" | "20070178501" | "20070184467" | "20070202525" | "20070202536" | "20070207466" | "20070212689" | "20070243549" | "20070259351" | "20080020390" | "20080026390" | "20080038733" | "20080070792" | "20080071076" |	PGPB, USPT	n/a	ADJ	YES	ASSIGNEE	06-10-2020

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(US-5635366-$ | US-5716776-$ | US-5753467-$ | US-5824467-$ | US-5860917-$ | US-5972602-$ | US-5994148-$ | US-6001611-$ | US-6025128-$ | US-6066454-$ | US-6100029-$ | US-6108635-$ | US-6124120-$ | US-6143496-$ | US-6156504-$ | US-6180349-$ | US-6214558-$ | US-6258540-$ | US-6300077-$ | US-6440706-$ | US-6479235-$ | US-6489135-$ | US-6720140-$ | US-6794140-$ | US-6807491-$ | US-6852487-$ | US-6958211-$ | US-6964847-$ | US-7035739-$ | US-7058517-$ | US-7058616-$ | US-7218764-$ | US-7297485-$ | US-7332277-$ | US-7414118-$ | US-7442506-$ | US-7459273-$ | US-7645576-$ | US-7700325-$ | US-7718367-$ | US-7718370-$ | US-7727720-$ | US-7805282-$ | US-7838647-$ | US-7888017-$ | US-8008018-$ | US-8024128-$ | US-8133719-$ | US-8137912-$ | US-8168389-$ | US-8173370-$ | US-8195415-$ |	USPT	67	ADJ	YES	ASSIGNEE	06-10-2020

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((US-5635366-$ | US-5716776-$ | US-5753467-$ | US-5824467-$ | US-5860917-$ | US-5972602-$ | US-5994148-$ | US-6001611-$ | US-6025128-$ | US-6066454-$ | US-6100029-$ | US-6108635-$ | US-6124120-$ | US-6143496-$ | US-6156504-$ | US-6180349-$ | US-6214558-$ | US-6258540-$ | US-6300077-$ | US-6440706-$ | US-6479235-$ | US-6489135-$ | US-6720140-$ | US-6794140-$ | US-6807491-$ | US-6852487-$ | US-6958211-$ | US-6964847-$ | US-7035739-$ | US-7058517-$ | US-7058616-$ | US-7218764-$ | US-7297485-$ | US-7332277-$ | US-7414118-$ | US-7442506-$ | US-7459273-$ | US-7645576-$ | US-7700325-$ | US-7718367-$ | US-7718370-$ | US-7727720-$ | US-7805282-$ | US-7838647-$ | US-7888017-$ | US-8008018-$ | US-8024128-$ | US-8133719-$ | US-8137912-$ | US-8168389-$ | US-8173370-$ | US-8195415-$ | US-8296076-$ | US-8304187-$ | US-8318430-$ | US-8450063-$ | US-8467976-$ | US-8515679-$ | US-8532930-$ | US-8682592-$ | US-8825412-$ | US-9085798-$ | US-9323888-$ | US-9476095-$ | US-9487829-$ | US-9598731-$ | US-9677118-$).DID. and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (tumor or cancer)) and lung (near3 tumor or cancer)	USPT	n/a	ADJ	YES	ASSIGNEE	06-10-2020
((US-5635366-$ | US-5716776-$ | US-5753467-$ | US-5824467-$ | US-5860917-$ | US-5972602-$ | US-5994148-$ |	USPT	13	ADJ	YES	ASSIGNEE	06-10-2020

US-6001611-$ | US-6025128-$ | US-6066454-$ | US-6100029-$ | US-6108635-$ | US-6124120-$ | US-6143496-$ | US-6156504-$ | US-6180349-$ | US-6214558-$ | US-6258540-$ | US-6300077-$ | US-6440706-$ | US-6479235-$ | US-6489135-$ | US-6720140-$ | US-6794140-$ | US-6807491-$ | US-6852487-$ | US-6958211-$ | US-6964847-$ | US-7035739-$ | US-7058517-$ | US-7058616-$ | US-7218764-$ | US-7297485-$ | US-7332277-$ | US-7414118-$ | US-7442506-$ | US-7459273-$ | US-7645576-$ | US-7700325-$ | US-7718367-$ | US-7718370-$ | US-7727720-$ | US-7805282-$ | US-7838647-$ | US-7888017-$ | US-8008018-$ | US-8024128-$ | US-8133719-$ | US-8137912-$ | US-8168389-$ | US-8173370-$ | US-8195415-$ | US-8296076-$ | US-8304187-$ | US-8318430-$ | US-8450063-$ | US-8467976-$ | US-8515679-$ | US-8532930-$ | US-8682592-$ | US-8825412-$ | US-9085798-$ | US-9323888-$ | US-9476095-$ | US-9487829-$ | US-9598731-$ | US-9677118-$).DID. and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (tumor or cancer)) and lung near3 (tumor or cancer)						
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(US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ | US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$).DID.	PGPB	23	ADJ	YES	ASSIGNEE	06-10-2020
((US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ |	PGPB	7	ADJ	YES	ASSIGNEE	06-10-2020

US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$).DID.) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
(US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ | US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$ | US-20190211391-$ | US-20190211392-$ | US-20190211393-$ | US-20190211399-$ | US-20190211402-$ | US-20190211406-$ | US-20190249241-$ | US-20190256906-$ | US-20190256907-$ | US-20190256909-$ | US-20190256916-$ | US-20190256917-$ | US-20190264277-$ | US-20190264280-$ | US-20190264288-$ | US-20190271043-$ | US-20190276888-$ | US-20190284623-$ | US-20190300950-$ | US-20190309358-$ | US-20190309359-$ | US-20190309365-$ | US-20190316184-$).DID.	PGPB	46	ADJ	YES	ASSIGNEE	06-10-2020
((US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ | US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$ | US-20190211391-$ | US-20190211392-$ | US-20190211393-$ | US-20190211399-$ | US-20190211402-$ | US-20190211406-$ | US-20190249241-$ | US-20190256906-$ | US-20190256907-$ |	PGPB	10	ADJ	YES	ASSIGNEE	06-10-2020

US-20190256909-$ | US-20190256916-$ | US-20190256917-$ | US-20190264277-$ | US-20190264280-$ | US-20190264288-$ | US-20190271043-$ | US-20190276888-$ | US-20190284623-$ | US-20190300950-$ | US-20190309358-$ | US-20190309359-$ | US-20190309365-$ | US-20190316184-$).DID.) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
("10081839" | "10083273" | "10308981" | "10316362").pn.	PGPB	0	ADJ	YES	ASSIGNEE	06-10-2020
("10081839" | "10083273" | "10308981" | "10316362").pn.	USPT	4	ADJ	YES	ASSIGNEE	06-10-2020
("20010051341" | "20010053519" | "20020006622" | "20020107640" | "20030009295" | "20030065535" | "20030077586" | "20030101000" | "20030119004" | "20030228613" | "20040033596" | "20040137470" | "20040146866" | "20040157243" | "20040197797" | "20040209299" | "20040229231" | "20040236518" | "20040259100" | "20050009069" | "20050049793" | "20050053950" | "20050079535" | "20050123914" | "20050130173" | "20050142577" | "20050144664" | "20050164241" | "20050216207" | "20050221341" | "20050227263" | "20050250111" | "20050255508" | "20050272073" | "20060019278" | "20060040300" | "20060052945" | "20060057618" | "20060068394" | "20060088574" | "20060099614" | "20060121452" | "20060134662" | "20060141499" | "20060210997" | "20060216738" | "20060229823" | "20060248031" | "20060281105").PN.	PGPB	49	ADJ	YES	ASSIGNEE	06-10-2020
(("20010051341" | "20010053519" | "20020006622" | "20020107640" | "20030009295" | "20030065535" | "20030077586" | "20030101000" | "20030119004" | "20030228613" | "20040033596" | "20040137470" | "20040146866" | "20040157243" | "20040197797" | "20040209299" | "20040229231" | "20040236518" |	PGPB	3	ADJ	YES	ASSIGNEE	06-10-2020

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"20040259100" | "20050009069" | "20050049793" | "20050053950" | "20050079535" | "20050123914" | "20050130173" | "20050142577" | "20050144664" | "20050164241" | "20050216207" | "20050221341" | "20050227263" | "20050250111" | "20050255508" | "20050272073" | "20060019278" | "20060040300" | "20060052945" | "20060057618" | "20060068394" | "20060088574" | "20060099614" | "20060121452" | "20060134662" | "20060141499" | "20060210997" | "20060216738" | "20060229823" | "20060248031" | "20060281105").PN.) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
Natera.asn. and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and progress$8	PGPB	27	ADJ	YES	ASSIGNEE	06-10-2020
Natera.asn. and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and progress$8	USPT	12	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)	PGPB	141	ADJ	YES	ASSIGNEE	06-10-2020
((cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)) and tumor near3 heterogen$8	PGPB	72	ADJ	YES	ASSIGNEE	06-10-2020
((cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)) and tumor near3 heterogen$8	PGPB	72	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or	USPT	70	ADJ	YES	ASSIGNEE	06-10-2020

tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)						
((cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)) and tumor near3 heterogen$8	USPT	22	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)	PGPB	141	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)	DWPI	6	ADJ	YES	ASSIGNEE	06-10-2020
US-20150087535-A1.did.	PGPB	1	ADJ	YES	ASSIGNEE	06-10-2020
("10179937" | "10597708" | "10711309" | "10731220" | "10774380" | "10793912" | "20040009518" | "20110130558" | "20120270739" | "20150315657" | "20160244838" | "20170107576" | "20200181697" | "20200190570" | "20200190573" | "20200190591" | "20200208196" | "20200208221" | "20200224273" | "20200232036" | "20200232037" | "20200248264" | "20200248266" | "20200318191" | "20200347454" | "20200350034" | "6927028" | "7410764").PN.	PGPB, USPT	28	ADJ	YES	ASSIGNEE	12-22-2020
Guardant Health.asn. and (cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8	PGPB	3	ADJ	YES	ASSIGNEE	12-22-2020
14/425589.app.	PGPB	1	ADJ	YES	ASSIGNEE	12-22-2020
14/425189.app.	PGPB	1	ADJ	YES	ASSIGNEE	12-22-2020
16/288351.app.	PGPB	1	ADJ	YES	ASSIGNEE	12-22-2020

(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	PGPB	48	ADJ	YES	ASSIGNEE	12-22-2020
(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	PGPB	48	ADJ	YES	ASSIGNEE	12-22-2020
(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	USPT	23	ADJ	YES	ASSIGNEE	12-22-2020
(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	DWPI	1	ADJ	YES	ASSIGNEE	12-22-2020
16/288351.app.	PGPB	1	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	202	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	202	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	USPT	185	ADJ	YES	ASSIGNEE	09-07-2021

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(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	DWPI	1	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and limit of detection near5 0.01((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	0	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) near5 0.01((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	0	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) near5 0.01 and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	0	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	21	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	USPT	7	ADJ	YES	ASSIGNEE	09-07-2021

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(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	DWPI	0	ADJ	YES	ASSIGNEE	09-07-2021
16/288351.app.	PGPB	1	ADJ	YES	ASSIGNEE	03-07-2022
(ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$8 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16).CPC.)	PGPB	708	ADJ	YES	ASSIGNEE	03-07-2022
((ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$8 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16).CPC.)) and (cell-free or cell free or circulat$8) near3 (DNA or nucleic)	PGPB	272	ADJ	YES	ASSIGNEE	03-07-2022
(ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$8 near3 (PCR or amplif$8) and (cell-free or cell free or circulat$8) near3 (DNA or nucleic) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16).CPC.)	USPT	233	ADJ	YES	ASSIGNEE	03-07-2022
(ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$8 near3 (PCR or amplif$8) and (cell-free or cell free or circulat$8) near3 (DNA or nucleic) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16).CPC.)	DWPI	1	ADJ	YES	ASSIGNEE	03-07-2022
("10017810" | "10041127" | "10061890" | "10174369" | "10227652" | "10240202" | "10392664" | "10450597" | "10522242" | "10894976" | "11111543" | "11111544" | "11111545" | "20020119478" | "20020182622" | "20030040620" |	PGPB, USPT	120	ADJ	YES	ASSIGNEE	03-07-2022

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"20030044388" | "20030087276" | "20030138780" | "20030232353" | "20040096874" | "20040115629" | "20040126760" | "20040146866" | "20050043894" | "20050282185" | "20060051799" | "20060094010" | "20060216153" | "20060292599" | "20070037166" | "200720070134658200" | "20080280292" | "20080286783" | "20080299562" | "20090053719" | "200920090263800200902680" | "20090280479" | "20100041048" | "20100086914" | "20100105049" | "20100129792" | "20100173394" | "20100285478" | "20110294699" | "20120208706" | "20120264618" | "20130022973" | "20130085681" | "20140274740" | "20150211050" | "20150299812" | "20160046986" | "20160115541" | "20160186239" | "20160239602" | "20170011166" | "20170114411" | "20170152561" | "20170218458" | "20170275689" | "20170283788" | "20170314014" | "20170362649" | "20180187241" | "20180251553" | "20180288982" | "20190256924" | "20200032323" | "20200109449" | "20200316498" | "20200362415" | "20200407788" | "20200407798" | "20210009990" | "20210025005" | "20210054459" | "20210071246" | "20210139983" | "20210139988" | "20210155988" | "20210189498" | "20210198733" | "20210198742" | "20210198743" | "20210222230" | "20210222240" | "20210257048" | "20210324463" | "20210327538" | "20210327542" | "20210355536" | "4683195" | "4942124" | "5648220" | "5891734" | "5952170" | "5962223" | "6329179" | "6605451" | "6858412" | "7101663" | "7153656" | "7655399" | "7741463" | "7981609" | "8236503" | "8318434" | "8323897" | "8372584" | "8501409" | "8679741" | "8748103" | "9005894" | "9051602" | "9206475" | "9228234" | "9404150" | "9424392" | "9453257" | "9493828" | "9506119").PN.						
		99	ADJ	YES	ASSIGNEE	03-07-2022

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(("10017810" | "10041127" | "10061890" | "10174369" | "10227652" | "10240202" | "10392664" | "10450597" | "10522242" | "10894976" | "11111543" | "11111544" | "11111545" | "20020119478" | "20020182622" | "20030040620" | "20030044388" | "20030087276" | "20030138780" | "20030232353" | "20040096874" | "20040115629" | "20040126760" | "20040146866" | "20050043894" | "20050282185" | "20060051799" | "20060094010" | "20060216153" | "20060292599" | "20070037166" | "200720070134658200" | "20080280292" | "20080286783" | "20080299562" | "20090053719" | "2009200902638002009026 80" | "20090280479" | "20100041048" | "20100086914" | "20100105049" | "20100129792" | "20100173394" | "20100285478" | "20110294699" | "20120208706" | "20120264618" | "20130022973" | "20130085681" | "20140274740" | "20150211050" | "20150299812" | "20160046986" | "20160115541" | "20160186239" | "20160239602" | "20170011166" | "20170114411" | "20170152561" | "20170218458" | "20170275689" | "20170283788" | "20170314014" | "20170362649" | "20180187241" | "20180251553" | "20180288982" | "20190256924" | "20200032323" | "20200109449" | "20200316498" | "20200362415" | "20200407788" | "20200407798" | "20210009990" | "20210025005" | "20210054459" | "20210071246" | "20210139983" | "20210139988" | "20210155988" | "20210189498" | "20210198733" | "20210198742" | "20210198743" | "20210222230" | "20210222240" | "20210257048" | "20210324463" | "20210327538" | "20210327542" | "20210355536" | "4683195" | "4942124" | "5648220" | "5891734" | "5952170" | "5962223" | "6329179" | "6605451" | "6858412" | "7101663" | "7153656" | "7655399" | "7741463" | "7981609" | "8236503" | "8318434" | "8323897" | "8372584" | "8501409" | "8679741" |	PGPB, USPT					

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"8748103" | "9005894" | "9051602" | "9206475" | "9228234" | "9404150" | "9424392" | "9453257" | "9493828" | "9506119").PN.) and (mutation or polymorphism or SNP or SNV or variant) and sequencing						
(("10017810" | "10041127" | "10061890" | "10174369" | "10227652" | "10240202" | "10392664" | "10450597" | "10522242" | "10894976" | "11111543" | "11111544" | "11111545" | "20020119478" | "20020182622" | "20030040620" | "20030044388" | "20030087276" | "20030138780" | "20030232353" | "20040096874" | "20040115629" | "20040126760" | "20040146866" | "20050043894" | "20050282185" | "20060051799" | "20060094010" | "20060216153" | "20060292599" | "20070037166" | "200720070134658200" | "20080280292" | "20080286783" | "20080299562" | "20090053719" | "2009200902638002009026 80" | "20090280479" | "20100041048" | "20100086914" | "20100105049" | "20100129792" | "20100173394" | "20100285478" | "20110294699" | "20120208706" | "20120264618" | "20130022973" | "20130085681" | "20140274740" | "20150211050" | "20150299812" | "20160046986" | "20160115541" | "20160186239" | "20160239602" | "20170011166" | "20170114411" | "20170152561" | "20170218458" | "20170275689" | "20170283788" | "20170314014" | "20170362649" | "20180187241" | "20180251553" | "20180288982" | "20190256924" | "20200032323" | "20200109449" | "20200316498" | "20200362415" | "20200407788" | "20200407798" | "20210009990" | "20210025005" | "20210054459" | "20210071246" | "20210139983" | "20210139988" | "20210155988" | "20210189498" | "20210198733" | "20210198742" | "20210198743" | "20210222230" | "20210222240" | "20210257048" | "20210324463" | "20210327538" | "20210327542" |	PGPB, USPT	63	ADJ	YES	ASSIGNEE	03-07-2022

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"20210355536" | "4683195" | "4942124" | "5648220" | "5891734" | "5952170" | "5962223" | "6329179" | "6605451" | "6858412" | "7101663" | "7153656" | "7655399" | "7741463" | "7981609" | "8236503" | "8318434" | "8323897" | "8372584" | "8501409" | "8679741" | "8748103" | "9005894" | "9051602" | "9206475" | "9228234" | "9404150" | "9424392" | "9453257" | "9493828" | "9506119").PN. and (mutation or polymorphism or SNP or SNV or variant) and sequencing) and (ultra-sensitive or ultrasensitive or low-frequency or low frequency or rare)						

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PALM INTRANET

Day : Thursday

Date: 3/3/2022
Time: 16:32:55

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	**First Name**	
Babiarz	Joshua	Search

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Date: 3/3/2022
Time: 16:32:55

Inventor Name Search

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Last Name	**First Name**	
Constantin	Tudor	Search

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Last Name	**First Name**	
Eubank	Lane	Search

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Last Name	**First Name**	
Gemelos	George	Search

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Last Name	**First Name**	
Hill	Matthew	Search

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Last Name	**First Name**	
Kirkizlar	Huseyin	Search

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Last Name	**First Name**	
Rabinowitz	Matthew	Search

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Last Name	**First Name**	
Sakarya	Onur	Search

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Last Name	First Name	
Sigurjonsson	Styrmir	Search

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Last Name	**First Name**	
Zimmermann	Bernhard	Search

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	Application Number	16/288,351
	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

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	Attorney Docket Number	N.012.US.10

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	Attorney Docket Number	N.012.US.10

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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	Attorney Docket Number	N.012.US.10

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		20190256924	A1	2019-08-22	VOGELSTEIN, B. et al.	
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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/288,351
	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

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EXAMINER SIGNATURE

Examiner Signature	/TERESA E STRZELECKA/	Date Considered	03/07/2022

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Web Search History

date, time	web site	search string
3/7/2022 3:38:11 PM	Google	low-frequency mutation sequencing ultrasensitive

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		20220033908	A1	2022-02-03	RABINOWITZ, M. et al.	
		20220033909	A1	2022-02-03	BABIARZ, J. et al.	
		20220042103	A1	2022-02-10	RABINOWITZ, M. et al.	
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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	Attorney Docket Number	N.012.US.10

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

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	Art Unit	1637
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	Attorney Docket Number	N.012.US.10

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A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Tianran Yan/	Date (YYYY-MM-DD)	2022-03-08
Name/Print	Tianran Yan	Registration Number	67,162

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Application Number:	16288351
International Application Number:	
Confirmation Number:	1764
Title of Invention:	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS
First Named Inventor/Applicant Name:	Joshua BABIARZ
Customer Number:	110711
Filer:	Anton John Bokal/Jeremy Johnston
Filer Authorized By:	Anton John Bokal
Attorney Docket Number:	N.012.US.10
Receipt Date:	08-MAR-2022
Filing Date:	28-FEB-2019
Time Stamp:	17:37:13
Application Type:	Utility under 35 USC 111(a)

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	**01/12/2022 10:27:13 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60485156	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 30

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
YIJEN_2009_p741_NPL.pdf	11	Non Patent Literature	1650 KB
YILMAZ_2010_p900_NPL.pdf	17	Non Patent Literature	1366 KB
YUANXIN_2003_7pgs_NPL.pdf	7	Non Patent Literature	3575 KB
ZHANG_2001_p381_NPL.pdf	2	Non Patent Literature	76 KB
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New Applications Under 35 U.S.C. 111

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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	**01/12/2022 09:12:34 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60485105	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
WO2003018757A3.pdf	3	Foreign Reference	136 KB
WO2004051218A2.pdf	62	Foreign Reference	4427 KB
WO2004069849A2.pdf	57	Foreign Reference	3160 KB
WO2004070005A2.pdf	20	Foreign Reference	2048 KB
WO2004070007A2.pdf	20	Foreign Reference	1971 KB
WO2005003375A2.pdf	200	Foreign Reference	3088 KB
WO2005023091A2.pdf	20	Foreign Reference	1562 KB

WO2005030999A1.pdf	393	Foreign Reference	4444 KB
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WO2006128192A2.pdf	91	Foreign Reference	4034 KB
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WO1995001796A1.pdf	62	Foreign Reference	1810 KB
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New Applications Under 35 U.S.C. 111

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16/288,351	**01/12/2022 09:04:31 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

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CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60485098	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
Tufan_2005_p85_NPL.pdf	8	Non Patent Literature	77 KB
TUZCU_2005_p1542_NPL.pdf	5	Non Patent Literature	117 KB
UMETANI_2006_p1062_NPL.pdf	9	Non Patent Literature	851 KB
URBANOVA_2010_p242_NPL.pdf	18	Non Patent Literature	1002 KB
VALLONE_2008_p42_NPL.pdf	4	Non Patent Literature	536 KB

VANNESTE_2020_16pgs_NPL.pdf	16	Non Patent Literature	1450 KB
VERLAAN_2009_p127_NPL.pdf	10	Non Patent Literature	488 KB
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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	**01/12/2022 08:56:57 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60485084	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
STOLERMAN_2008_p1977_NPL.pdf	7	Non Patent Literature	125 KB
SWARUP_2007_p795_NPL.pdf	5	Non Patent Literature	414 KB
STEWART_2005_p1710_NPL.pdf	11	Non Patent Literature	1157 KB
STILLER_2009_p1848_NPL.pdf	6	Non Patent Literature	860 KB
SPINDLER_2014_p2984_NPL.pdf	8	Non Patent Literature	1198 KB

TAKALA_2006_p10_NPL.pdf	-	Non Patent Literature	561 KB
STONE_2016_p230_NPL.pdf	10	Non Patent Literature	1214 KB
SPINDLER_2017_p1049_NPL.pdf	7	Non Patent Literature	1525 KB
TONG_2005_p196_NPL.pdf	10	Non Patent Literature	214 KB
TOSHIKAZU_2003_p398_NPL.pdf	15	Non Patent Literature	291 KB
THORNTON_2011_p145_NPL.pdf	10	Non Patent Literature	1409 KB
THOMPSON_2016_p5772_NPL.pdf	12	Non Patent Literature	1149 KB
SHARPLES_2003_p679_NPL.pdf	4	Non Patent Literature	121 KB
SMITH_2008_p337_NPL.pdf	8	Non Patent Literature	138 KB
SMITH_2008_p1642_NPL.pdf	5	Non Patent Literature	270 KB
SOLEXA_2006_p2_NPL.pdf	2	Non Patent Literature	674 KB
SORENSON_1994_p67_NPL.pdf	6	Non Patent Literature	948 KB
SPES_1999_p515_NPL.pdf	7	Non Patent Literature	174 KB
SHYAMALA_1989_p1_NPL.pdf	8	Non Patent Literature	1546 KB
SINGH_2001_p27_NPL.pdf	7	Non Patent Literature	2728 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
LI_2004_p658_NPL.pdf	4	Non Patent Literature	131 KB
LI_2005_2_NPL.pdf	2	Non Patent Literature	1862 KB
LI_2006_p147_NPL.pdf	4	Non Patent Literature	127 KB
LI_2008_p1858_NPL.pdf	9	Non Patent Literature	415 KB
LI_2009_p1615_NPL.pdf	10	Non Patent Literature	1032 KB
LI_2009_p1967_NPL.pdf	2	Non Patent Literature	89 KB
LILJEDAHL_2004_p10_2004.pdf	10	Non Patent Literature	367 KB

LO_1998_p1330_NPL.pdf	4	Non Patent Literature	125 KB
LO_2001_p7_NPL.pdf	7	Non Patent Literature	114 KB
LO_2009_p608_NPL.pdf	2	Non Patent Literature	45 KB
LOH_1991_p11_NPL.pdf	9	Non Patent Literature	2252 KB
LUI_2002_p968_NPL.pdf	7	Non Patent Literature	70 KB
LUI_2003_p496_NPL.pdf	2	Non Patent Literature	115 KB
LUN_2008_p1672_NPL.pdf	9	Non Patent Literature	333 KB
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Lavrentieva_1999_p341_NPL.pdf	7	Non Patent Literature	224 KB
LEAMON_2003_p3777_NPL.pdf	9	Non Patent Literature	335 KB
Lee_2017_p47_NPL.pdf	1	Non Patent Literature	55 KB
LEVSKY_2009_ps108_NPL.pdf	10	Non Patent Literature	2298 KB

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MATSUBARA_1996_p6181_NPL.pdf	5	Non Patent Literature	3148 KB
MESSMER_1997_p2043_NPL.pdf	4	Non Patent Literature	4048 KB
METZKER_1998_p446_NPL.pdf	10	Non Patent Literature	4649 KB
Metzker_2006_p380_NPL.pdf	11	Non Patent Literature	15187 KB

MEUZELAAR_2007_p835_NPL.pdf	8	Non Patent Literature	3500 KB
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New Applications Under 35 U.S.C. 111

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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	**01/12/2022 07:47:13 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60484998	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
GADI_2006_p379_NPL.pdf	4	Non Patent Literature	817 KB
GAO_1997_p629_NPL.pdf	7	Non Patent Literature	130 KB
GAO_1998_p399_NPL.pdf	14	Non Patent Literature	719 KB
GARCIA_MOREIRA_2009_p1958_NPL.pdf	9	Non Patent Literature	1099 KB
GEIFMAN-HOLTZMAN_2008_p751_NPL.pdf	25	Non Patent Literature	530 KB
GIELIS_2015_p2541_NPL.pd	12	Non Patent Literature	991 KB

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GINEIKIENE_2009_p74_NPL.pdf	9	Non Patent Literature	330 KB
GINGERAS_2005_p671_NPL.pdf	11	Non Patent Literature	923 KB
GIRNITA_2006_p1780_NPL.pdf	7	Non Patent Literature	182 KB
GO_2011_p372_NPL.pdf	11	Non Patent Literature	1486 KB
GORDON_2009_p556_NPL.pdf	7	Non Patent Literature	172 KB
GOUYA_2009_p385_NPL.pdf	9	Non Patent Literature	270 KB
GREGORY_2006_p884_NPL.pdf	8	Non Patent Literature	356 KB
Fan_2007_p7576_NPL.pdf	4	Non Patent Literature	217 KB
FAN_2010_16pgs_NPL.pdf	16	Non Patent Literature	1140 KB
FITZGERALD_1992_p158_NPL.pdf	5	Non Patent Literature	4977 KB
FOURNIE_1995_p227_NPL.pdf	7	Non Patent Literature	984 KB
FREDRIKSSON_2003_p266_NPL.pdf	12	Non Patent Literature	291 KB
Frohman_1994_p540_NPL.pdf	20	Non Patent Literature	4008 KB
FU_2006_p482_NPL.pdf	6	Non Patent Literature	683 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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New Applications Under 35 U.S.C. 111

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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	**01/12/2022 07:39:46 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60484984	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
DEB_2008_p17_NPL.pdf	8	Non Patent Literature	1118 KB
DELGADO_2013_p983_NPL.pdf	4	Non Patent Literature	432 KB
DOOSTZADEH_2008_p4_NPL.pdf	4	Non Patent Literature	151 KB
DORIT_1992_p15.6.1_NPL.pdf	10	Non Patent Literature	2414 KB
DORIT_1993_p36_NPL.pdf	12	Non Patent Literature	1405 KB
EDWARDS_1994_S65_NPL.	12	Non Patent Literature	831 KB

pdf			
EFRON_1986_p54_NPL.pdf	22	Non Patent Literature	3608 KB
ELNIFRO_2000_p559_NPL.pdf	12	Non Patent Literature	4027 KB
EP1325963A1.pdf	14	Foreign Reference	634 KB
EP1325963B1.pdf	11	Foreign Reference	578 KB
EP2877594B1.pdf	321	Foreign Reference	3964 KB
EP3760730A1.pdf	110	Foreign Reference	3247 KB
EP3760731A1.pdf	111	Foreign Reference	3349 KB
EP3760732A1.pdf	113	Foreign Reference	3492 KB
EP3824470.pdf	89	Foreign Reference	8830 KB
ERIJMAN_2011_p121_NPL.pdf	7	Non Patent Literature	1056 KB
CRESPO-LEIRO_2009_p2243_NPL.pdf	4	Non Patent Literature	60 KB
CUNNINGHAM_2006_p121_NPL.pdf	9	Non Patent Literature	686 KB
DAHL_2007_p9392_NPL.pdf	6	Non Patent Literature	603 KB
DAMBRIN_1999_p531_NPL.pdf	8	Non Patent Literature	679 KB

Digest

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PATENT CENTER #	60484971	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

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Broude_2001_p327_NPL.pdf	6	Non Patent Literature	339 KB
Broude_2004_p61_NPL.pdf	16	Non Patent Literature	705 KB
BURKOVA_2014_26pgs_NPL.pdf	26	Non Patent Literature	1901 KB
BUSTAMANTE-ARAGONES_2008_p510_NPL.pdf	6	Non Patent Literature	301 KB
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New Applications Under 35 U.S.C. 111

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16/288,351	**01/12/2022 10:00:39 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60485149	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
WO2011032078A1.pdf	135	Foreign Reference	1519 KB
WO2011102998A2.pdf	20	Foreign Reference	1628 KB
WO2011109440A1.pdf	20	Foreign Reference	1993 KB
WO2011140433A2.pdf	69	Foreign Reference	4421 KB
WO2012042374A2.pdf	65	Foreign Reference	496 KB
WO2013138510A9.pdf	102	Foreign Reference	2061 KB
WO2014145232A2.pdf	62	Foreign Reference	578 KB

WO2014194113A2.pdf	48	Foreign Reference	753 KB
WO2016063122A1.pdf	77	Foreign Reference	617 KB
WO2016123698A1.pdf	28	Foreign Reference	753 KB
WO2016176662A1.pdf	84	Foreign Reference	3713 KB
WO2017190106A1.pdf	83	Foreign Reference	3959 KB
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WO2010118016A2.pdf	46	Foreign Reference	1898 KB
WO2011023078A1.pdf	27	Foreign Reference	579 KB

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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	**01/12/2022 09:53:07 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60485144	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

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WO2008079374A2.pdf	20	Foreign Reference	4819 KB
WO2008084405A2.pdf	199	Foreign Reference	4143 KB
WO2008115427A2.pdf	20	Foreign Reference	1842 KB
WO2008118988A1.pdf	55	Foreign Reference	2437 KB
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PATENT CENTER #	60485064	FILING DATE	02/28/2019
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RDT_2008_p2_NPL.pdf	2	Non Patent Literature	332 KB
ROCHE_2012_p22_NPL.pdf	22	Non Patent Literature	1709 KB
ROSS_2000_p620_NPL.pdf	8	Non Patent Literature	274 KB
ROTHBERG_2008_p1124_NPL.pdf	8	Non Patent Literature	704 KB

RUBIO_1999_p183_NPL.pdf	5	Non Patent Literature	2732 KB
RUSCHENDORF_2005_p2125_NPL.pdf	3	Non Patent Literature	262 KB
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SCHAAF_2011_p25_NPL.pdf	29	Non Patent Literature	3192 KB
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SCHWARZENBACH_p25_2004_NPL.pdf	8	Non Patent Literature	466 KB
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PUSZYK_2007_p6_NPL.pdf	6	Non Patent Literature	92 KB
QIAGEN_2003_68pgs_NPL.pdf	68	Non Patent Literature	3572 KB

Digest

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	**01/12/2022 08:35:12 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60485050	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
Olivarius_2009_p130_NPL.pdf	3	Non Patent Literature	372 KB
OLIVER_2000_p208_NPL.pdf	7	Non Patent Literature	447 KB
OLIVIER_2005_p110_NPL.pdf	9	Non Patent Literature	668 KB
ORSOUW_2017_p10_NPL.pdf	10	Non Patent Literature	664 KB
OWCZARZY_2005_p207_NPL.pdf	9	Non Patent Literature	947 KB

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OHIRA_2016_p1660_NPL.pdf	8	Non Patent Literature	1503 KB
OKOU_2007_p909_NPL.pdf	3	Non Patent Literature	217 KB
OKOU_2009_p513_NPL.pdf	12	Non Patent Literature	538 KB

Digest

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	**01/12/2022 08:11:44 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60485027	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
KOIDE_2005_p604_NPL.pdf	4	Non Patent Literature	395 KB
KOLDEHOFF_2006_p746_NPL.pdf	12	Non Patent Literature	312 KB
Konfortov_2000_p1737_NPL.pdf	8	Non Patent Literature	144 KB
KOPRESKI_1997_p12393_NPL.pdf	7	Non Patent Literature	672 KB
KORESSAAR_2007_p1289_NPL.pdf	3	Non Patent Literature	3506 KB

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	**01/12/2022 08:03:19 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60485016	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
Iskow_2010_p1253_NPL.pdf	12	Non Patent Literature	326 KB
JEN_2000_p8_NPL.pdf	5	Non Patent Literature	111 KB
JP2002300894_US20021826 22A1.pdf	101	Foreign Reference	3351 KB
JP2008263974A_US2008286 783A1.pdf	138	Foreign Reference	15628 KB
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KALENDAR_2011_p137_NPL.pdf	8	Non Patent Literature	1179 KB
KANE_2006_p694_NPL.pdf	3	Non Patent Literature	2375 KB
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HUBACEK_2007_p1595_NPL.pdf	3	Non Patent Literature	344 KB
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ILLUMINA_2010_p38944_NPL.pdf	6	Non Patent Literature	784 KB
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ILLUMINA_HiSeq_2500_Sequencing_System_2015_4pgs_NPL.pdf	4	Non Patent Literature	595 KB
INGMAN_2008_p386_NPL.pdf	4	Non Patent Literature	62 KB
INTEREWICZ_2004_p45_NPL.pdf	4	Non Patent Literature	275 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	**01/12/2022 07:53:09 PM ET**	**N.012.US.10**

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60485007	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 20

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
HEATON_1997_p2762_NPL.pdf	5	Non Patent Literature	642 KB
HEIDARY_2014_10pgs_NPL.pdf	10	Non Patent Literature	1321 KB
HENEGARIU_1997_p504_NPL.pdf	8	Non Patent Literature	521 KB
HIDESTRAND_2014_p1224_NPL.pdf	3	Non Patent Literature	1683 KB
HOBERMAN_2009_p1552_NPL.pdf	11	Non Patent Literature	1213 KB

HOCHBERG_2003_p369_NPL.pdf	7	Non Patent Literature	172 KB
HODGES_2007_p1527_NPL.pdf	6	Non Patent Literature	472 KB
HOFFMANN_2004_p1693_NPL.pdf	8	Non Patent Literature	109 KB
HOLT_2009_p2075_NPL.pdf	2	Non Patent Literature	74 KB
HORAI_2009_p190_NPL.pdf	6	Non Patent Literature	475 KB
HOSMILLO_2010_p212_NPL.pdf	7	Non Patent Literature	903 KB
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HALFORD_1999_p835_NPL.pdf	1	Non Patent Literature	2084 KB
HANDLEY_2010_p581_NPL.pdf	12	Non Patent Literature	2012 KB
HAO_2014_p1482_NPL.pdf	8	Non Patent Literature	536 KB

Digest

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HUANG_2006_p728_NPL.pdf	E14FABDAFADFB77E79023B57F41D9034439F1DDD70916805389F66742A45334B817399D748DB190BEF9CDCEE34C002D3C1BFD253E1B147BF7C2C49BFB34CC002
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GWEE_2003_5_NPL.pdf	E012C5B0458BB2ECCD9872D1650849F6BE8C70344E59EF9538317AF51C3E311DB97CFC8EFDD0AEB70300B368792A210D3BBB25CE76BC3EA22BF0F0275D68A018F
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PATENT CENTER #	60484955	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

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BALAVOINE_1996_p1547_NPL.pdf	8	Non Patent Literature	1003 KB
BALDUINI_2003_p3078_NPL.pdf	4	Non Patent Literature	94 KB
BARBAZUK_2007_p918_NPL.pdf	9	Non Patent Literature	141 KB
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BARBAZUK_2007_p918_NPL.pdf	AE08414F5D5332251979261F511DFC1261C2C2B42E8007D8145F58122CCE4FF54337CDA4FDD68EE3295E1419147C734AC9675279ACA301C8394EC65C44B689CD
BARTLETT_2003_NPL.pdf	4451495B14E36EA8ABB79BA5FBFED9EB2EFE8992A685FF3E257DC8CEFAF64E2C4688AE5B4DD2D4BB59E04EAFDD38A997A46E41E0EC3D332CB5BB7820492640FD
BAXTER-LOWE_2006_p561_NPL.pdf	ACA4AFA9D6A8464B3FAC4E19038FC67609FBE373F0B7F6E1E139CB0D081AA3EDAB8DEFCE304F50610AF1CBDEC7A768A237C2669FD67EF386D71CED1A063065D1
BECK_2009_p730_NPL.pdf	374465892955AB82DE03B351D2129188C20375708B8E5DD42C41522A5B9D8F7059084B72720C957F62A439CC9BD58B1A6AB698BDCE952F448CB7A677642CDA37
BECK_2010_p342_NPL.pdf	9B66F13D2E56E7F2F1E3504B87215399848610 8BFAC9D0C4E865431166FBBEEBDFA6457165BAA740BA7037FFEDD863D2FA7446FE431753EC5006CA1787B139A6
BELOSTOTSKY_2009_p408_NPL.pdf	5964F9762D1543A44FF09FC18481964E38861C6E9757932626CC0F62E7DE3DC856E91262752561FB5D1F753D27FBCE5197A0E560DC0C50DE004F3B9D0D4055DB

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1996036736.pdf	1C0C2543D8EC642FEF82B570338ABC006A14CE117C3FE5E4B7564374B86954E2704CB62EC80B7BC24D904D659CCF6E6FC92973CF65976D919C6291EB09DB73BA
2001007640.pdf	F28555B6411AF0DA3A30D1B113293DADBF64C5786CDA7069D3690A2107E77BEB40D6D9DC37C9F36BEDE4A1DC7261F3692246D9814AB0F71E98BDF520705B819E
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ADALSTEINSSON_2017_13pgs_NPL.pdf	4E63E08163195F97FCF58B5C0CD8F44FA7F77FEB9EFA702E301F71B444CED866626E552087F35432E2315BF09E7BFF4917B65A27A8B6B0D23EA041235FB64640
ADINOLFI_1997_p1299_NPL.pdf	7B07B4D7CAD82EB838D019E2A737018CD1E000865C29806AC8935126F280623B6FFD5B0AEA5C08B31DFB0FE55782D4A97579BF2ED8B4992513F663580E27C7C0
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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/288,351
	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

		ZHENG, Z et al., "Anchored Multiplex PCR for Targeted Next-generation Sequencing", Nature Medicine, Vol. 20, No. 12, December 2014, 1479-1486	
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PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/288,351
	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

		ZIMMERMANN, B. et al., "Real-Time Quantitative Polymerase Chain Reaction Measurement of Male Fetal DNA in Maternal Plasma", Methods in Molecular Medicine, Vol. 132, 2007, 43-49	
		ZIMMERMANN, B. et al., "Use of Real-Time Polymerase Chain Reaction for the Detection of Fetal Aneuploidies", Methods in Molecular Biology, Vol. 336, FEB 2006, 83-100	

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/288,351
	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

The submission of this Information Disclosure Statement does not constitute an admission that a search was made, does not constitute an admission that any information cited is prior art, and does not constitute an admission that no other or better art exists.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Tianran Yan/	Date (YYYY-MM-DD)	2022-01-10
Name/Print	Tianran Yan	Registration Number	67,162

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Electronic Patent Application Fee Transmittal

Application Number:	16288351
Filing Date:	28-Feb-2019
Title of Invention:	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS
First Named Inventor/Applicant Name:	Joshua BABIARZ
Filer:	Anton John Bokal/Angela McGowan
Attorney Docket Number:	N.012.US.10

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
PETITION FEE- 37 CFR 1.17(H) (GROUP III)	1464	1	140	140
RCE- 2ND AND SUBSEQUENT REQUEST	1820	1	2000	2000
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**2140**

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Decision Date : January 12, 2022

In re Application of :

Joshua BABIARZ

DECISION ON PETITION
UNDER CFR 1.313(c)(2)

Application No : 16288351

Filed : 28-Feb-2019

Attorney Docket No : N.012.US.10

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed January 12, 2022 , to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED.**

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 1637 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Electronic Acknowledgement Receipt	
EFS ID:	44732616
Application Number:	16288351
International Application Number:	
Confirmation Number:	1764
Title of Invention:	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS
First Named Inventor/Applicant Name:	Joshua BABIARZ
Customer Number:	110711
Filer:	Anton John Bokal/Angela McGowan
Filer Authorized By:	Anton John Bokal
Attorney Docket Number:	N.012.US.10
Receipt Date:	12-JAN-2022
Filing Date:	28-FEB-2019
Time Stamp:	19:16:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$2140
RAM confirmation Number	E20221BJ16434225
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	ePetition Request Form	petition-request.pdf	39894 4a116c35b7130efd67e5adaff33c6fef38cfd386	no	2
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	02_N012US10_RCE_SIGNED.pdf	1351787 fd2dddd1b1691d8a14677d541d7a1e053962dcbb	no	3
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	03_N012US10_SB08_SIGNED.pdf	408297 ad33e53b992036f96104ff96f4eef8f6dbea6a7c	no	52
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
4	Fee Worksheet (SB06)	fee-info.pdf	40702 522c454187a5f2b4a7abee7e5f960056cffb7aec	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1840680		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: PET.AUTO Document Description: Petition automatically granted by EFS-Web	PTO/SB/140 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)**
Application Number	16288351
Filing Date	28-Feb-2019
First Named Inventor	Joshua BABIARZ
Art Unit	1637
Examiner Name	
Attorney Docket Number	N.012.US.10
Title	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary.

APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c).

A grantable petition requires the following items:
(1) Petition fee; and
(2) One of the following reasons:
(a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable;
(b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or
(c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).

Petition Fee

- ○ Small Entity
- ○ Micro Entity
- ◉ Regular Undiscounted

Reason for withdrawal from issue

◯ One or more claims are unpatentable ◉ Consideration of a request for continued examination (RCE) (List of Required Documents and Fees) ◯ Applicant hereby expressly abandons the instant application (any attorney/agent signing for this reason must have power of attorney pursuant to 37 CFR 1.32(b)).
RCE request,submission, and fee. ☐ I certify, in accordance with 37 CFR 1.4(d)(4) that : The RCE request ,submission, and fee have already been filed in the above-identified application on ☒ Are attached.
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who has been given power of attorney in this application. ◯ An attorney or agent registered to practice before the Patent and Trademark Office, acting in a representative capacity. ◯ A sole inventor ◯ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ◯ A joint inventor; all of whom are signing this e-petition

Signature	/Anton Bokal/
Name	Anton Bokal
Registration Number	51243

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16288351	Filing Date	2019-02-28	Docket Number (if applicable)	N.012.US.10	Art Unit	1637
First Named Inventor	Joshua BABIARZ			Examiner Name	Teresa Strzelecka		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☑ Enclosed

- ☐ Amendment/Reply
- ☑ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
☑ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 506075

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

✓ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Tianran Yan/	Date (YYYY-MM-DD)	2022-01-10
Name	Tianran Yan	Registration Number	67162

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	01/25/2022	11230739	N.012.US.10	1764

110711 7590 01/05/2022

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site http://pair.uspto.gov for additional inventors):

Joshua BABIARZ, Castro Valley, CA;
Tudor Pompiliu CONSTANTIN, Berkeley, CA;
Lane A. EUBANK, San Carlos, CA;
George GEMELOS, Portland, OR;
Matthew Micah HILL, Belmont, CA;

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Natera, Inc., San Carlos, CA;

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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

110711 7590 09/15/2021

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

TITLE OF INVENTION: DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	12/15/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
STRZELECKA, TERESA E	1637	435-006120

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Natera, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): San Carlos, California

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ☒ Corporation or other private group entity ❑ Government

4a. Fees submitted: ☒ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 506075

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Tianran Yan/ Date 12-15-2021

Typed or printed name Tianran Yan Registration No. 67162

NeoGenomics
Exhibit 1003 Page 323

Electronic Patent Application Fee Transmittal

Application Number:	16288351
Filing Date:	28-Feb-2019
Title of Invention:	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS
First Named Inventor/Applicant Name:	Joshua BABIARZ
Filer:	Anton John Bokal/Angela McGowan
Attorney Docket Number:	N.012.US.10

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1200**

Electronic Acknowledgement Receipt	
EFS ID:	44521293
Application Number:	16288351
International Application Number:	
Confirmation Number:	1764
Title of Invention:	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS
First Named Inventor/Applicant Name:	Joshua BABIARZ
Customer Number:	110711
Filer:	Anton John Bokal/Angela McGowan
Filer Authorized By:	Anton John Bokal
Attorney Docket Number:	N.012.US.10
Receipt Date:	15-DEC-2021
Filing Date:	28-FEB-2019
Time Stamp:	11:44:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1200
RAM confirmation Number	E2021BEB45034245
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	N012US10_Issue_Fee_Transmittal_SIGNED.pdf	156835 9d0d638513071cd0ed43323cb2b31772199103cc	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38158 7707dbcbab96e432ce2f368340b39c134955e3dd	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	194993		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

110711 7590 09/15/2021

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

EXAMINER
STRZELECKA, TERESA E

ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 09/15/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

TITLE OF INVENTION: DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	12/15/2021

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

NeoGenomics
Exhibit 1003 Page 328

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

110711 7590 09/15/2021

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

TITLE OF INVENTION: DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	12/15/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
STRZELECKA, TERESA E	1637	435-006120

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____
2_____
3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

NeoGenomics
Exhibit 1003 Page 329

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

110711 7590 09/15/2021

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

EXAMINER	
STRZELECKA, TERESA E	
ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 09/15/2021

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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Exhibit 1003 Page 330

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/288,351	Applicant(s) BABIARZ et al.	
	Examiner TERESA E STRZELECKA	Art Unit 1637	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to RCE filed 29 JUne 2021.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are See Continuation Sheet . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/TERESA E STRZELECKA/
Primary Examiner, Art Unit 1637

Continuation of 3. The allowed claim(s) is/are: 1-2,4,6-7,9-13,15 and 18-24

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 29, 2021 has been entered.

3. Claims 1-4, 6, 7 and 9-26 were previously pending, with claims 4, 6, 9, 10, 13, 17-19, 21 and 22 withdrawn from consideration. Applicant amended claims 1 and 4 and cancelled claims 3, 14, 16, 17, 25 and 26. Claims 1, 2, 7, 11, 12, 15, 20, 23 and 24 are under consideration.

4. Applicant's claim amendments overcame all of the previously presented rejections. No new references were found teaching or suggesting claim 1 which now requires detection of SNV mutation that is present in less than or equal to 0.015% of the cell free DNA having the SNV locus. The closes prior art reference, Talasaz et al. (US 2014/0066317 A1; published March 2014), teaches detection limit of 0.1% for SNV mutations in cell-free DNA by sequencing (Example 4, Fig. 6B).

Terminal Disclaimer

5. The terminal disclaimer filed on June 1, 2021, disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of a patent

granted on Application Numbers 16/288,416; 16/288.462 and 16/399,941 has been reviewed and is accepted. The terminal disclaimer has been recorded.

In view of the acceptance of terminal disclaimer the previously presented obviousness-type double patenting rejections are withdrawn

6. In view of withdrawal of all of the previously pending rejections, claims 1, 2, 7, 11, 12, 15, 20, 23 and 24 are allowed. The previously withdrawn claims 4, 6, 9, 10, 13, 17-19, 21 and 22 are rejoined with the allowed claims. In conclusion, claims 1, 2, 4, 6, 7, 9-13, 15 and 18-24 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TERESA E STRZELECKA whose telephone number is (571)272-0789. The examiner can normally be reached on M-F 9-7.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TERESA E STRZELECKA/
Primary Examiner, Art Unit 1637
September 8, 2021

Notice of References Cited	Application/Control No. 16/288,351	Applicant(s)/Patent Under Reexamination BABIARZ et al.	
	Examiner TERESA E STRZELECKA	Art Unit 1637	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20140066317-A1	03-2014	Talasaz; AmirAli	C12N15/1072	506/2
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	Art Unit
	TERESA E STRZELECKA	1637

CPC - Searched*		
Symbol	**Date**	**Examiner**
C12Q1/6869 |C12Q2600/156 | G16B20/20 plus text search	12/22/2020	/TS/
C12Q1/6869 | C12Q2600/156 |C12Q2600/16 | G16B20/20 plus text search	09/07/2021	/TS/

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor name search	06/08/2020	/TS/
WEST	06/10/2020	/TS/
IDS (10/24/19; 3/10/20; 4/20/20; 5/4/20)	06/10/2020	/TS/
Pubmed	06/10/2020	/TS/
IDS (11/16/20)	12/18/2020	/TS/
Google	12/22/2020	/TS/
WEST	12/22/2020	/TS/
Inventor name search	09/07/2021	/TS/
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	Art Unit
	TERESA E STRZELECKA	1637

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

CPC						
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NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/TERESA E STRZELECKA/ Primary Examiner, Art Unit 1637	08 September 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	None

U.S. Patent and Trademark Office — Part of Paper No.: 20210908

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Exhibit 1003 Page 341

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/288,351	BABIARZ et al.
	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

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US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
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NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 18	
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U.S. Patent and Trademark Office Part of Paper No.: 20210908

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	**Art Unit**
	TERESA E STRZELECKA	1637

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

NONE		**Total Claims Allowed:**	
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U.S. Patent and Trademark Office Part of Paper No.: 20210908

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WEST Search History for Application 16288351

Creation Date: 2021090720:02

Interference Searches

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((US-5635366-$ | US-5716776-$ | US-5753467-$ | US-5824467-$ | US-5860917-$ | US-5972602-$ | US-5994148-$ | US-6001611-$ | US-6025128-$ | US-6066454-$ | US-6100029-$ | US-6108635-$ | US-6124120-$ | US-6143496-$ | US-6156504-$ | US-6180349-$ | US-6214558-$ | US-6258540-$ | US-6300077-$ | US-6440706-$ | US-6479235-$ | US-6489135-$ | US-6720140-$ | US-6794140-$ | US-6807491-$ | US-6852487-$ | US-6958211-$ | US-6964847-$ | US-7035739-$ | US-7058517-$ | US-7058616-$ | US-7218764-$ | US-7297485-$ | US-7332277-$ | US-7414118-$ | US-7442506-$ | US-7459273-$ | US-7645576-$ | US-7700325-$ | US-7718367-$ | US-7718370-$ | US-7727720-$ | US-7805282-$ | US-7838647-$ | US-7888017-$ | US-8008018-$ | US-8024128-$ | US-8133719-$ | US-8137912-$ | US-8168389-$ | US-8173370-$ | US-8195415-$ | US-8296076-$ | US-8304187-$ | US-8318430-$ | US-8450063-$ | US-8467976-$ | US-8515679-$ | US-8532930-$ | US-8682592-$ | US-8825412-$ | US-9085798-$ | US-9323888-$ | US-9476095-$ | US-9487829-$ | US-9598731-$ | US-9677118-$).DID. and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (tumor or cancer)) and lung (near3 tumor or cancer)	USPT	n/a	ADJ	YES	ASSIGNEE	06-10-2020
((US-5635366-$ | US-5716776-$ | US-5753467-$ | US-5824467-$ | US-5860917-$ | US-5972602-$ | US-5994148-$ | US-6001611-$ | US-6025128-$ | US-6066454-$ | US-6100029-$ | US-6108635-$ | US-6124120-$ | US-6143496-$ | US-6156504-$ | US-6180349-$ | US-6214558-$ | US-6258540-$ | US-6300077-$ | US-6440706-$ | US-6479235-$ | US-6489135-$ | US-6720140-$ | US-6794140-$ | US-6807491-$	USPT	13	ADJ	YES	ASSIGNEE	06-10-2020

| US-6852487-$ | US-6958211-$ | US-6964847-$ | US-7035739-$ | US-7058517-$ | US-7058616-$ | US-7218764-$ | US-7297485-$ | US-7332277-$ | US-7414118-$ | US-7442506-$ | US-7459273-$ | US-7645576-$ | US-7700325-$ | US-7718367-$ | US-7718370-$ | US-7727720-$ | US-7805282-$ | US-7838647-$ | US-7888017-$ | US-8008018-$ | US-8024128-$ | US-8133719-$ | US-8137912-$ | US-8168389-$ | US-8173370-$ | US-8195415-$ | US-8296076-$ | US-8304187-$ | US-8318430-$ | US-8450063-$ | US-8467976-$ | US-8515679-$ | US-8532930-$ | US-8682592-$ | US-8825412-$ | US-9085798-$ | US-9323888-$ | US-9476095-$ | US-9487829-$ | US-9598731-$ | US-9677118-$).DID. and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (tumor or cancer)) and lung near3 (tumor or cancer)						
(US-20060210997-$ | US-20060216738-$ | US-20060281105-$ | US-20070020640-$ | US-20070042384-$ | US-20070128624-$ | US-20070027636-$ | US-20070059707-$ | US-20070122805-$ | US-20070178478-$ | US-20070178501-$ | US-20070184467-$ | US-20070202525-$ | US-20070202536-$ | US-20070207466-$ | US-20070212689-$ | US-20070243549-$ | US-20070259351-$ | US-20080090239-$ | US-20080138809-$ | US-20080220422-$ | US-20080020390-$ | US-20080026390-$ | US-20080038733-$ | US-20080070792-$ | US-20080071076-$ | US-20080085836-$ | US-20080096766-$ | US-20080102455-$ | US-20080182244-$ | US-20080193927-$ | US-20080234142-$ | US-20080243398-$ | US-20080305473-$ | US-20090143570-$ | US-20090023190-$ | US-20090029377-$ | US-20090087847-$ | US-20090098534-$ | US-20090099041-$ | US-20090176662-$ | US-20090221620-$ | US-20090317817-$ | US-20100129874-$ | US-20100273678-$ | US-20100035232-$ | US-20100112575-$ | US-20100112590-$ | US-20100120038-$ | US-20100124751-$ | US-20100138165-$ | US-20100171954-$ | US-20100184069-$ | US-20100184152-$ | US-20100196892-$ | US-20100203538-$ | US-20100216153-$ | US-20100248231-$ | US-20100255492-$ | US-20100256013-$ |	PGPB	154	ADJ	YES	ASSIGNEE	06-10-2020

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US-20100285537-$ | US-20100291572-$ | US-20100291635-$ | US-20100323352-$ | US-20110071031-$ | US-20110159499-$ | US-20110160078-$ | US-20110033862-$ | US-20110039724-$ | US-20110086769-$ | US-20110092763-$ | US-20110105353-$ | US-20110151442-$ | US-20110178719-$ | US-20110201507-$ | US-20110224087-$ | US-20110246083-$ | US-20110251149-$ | US-20110288780-$ | US-20110300608-$ | US-20110318734-$ | US-20120010085-$ | US-20120295819-$ | US-20120003635-$ | US-20120034603-$ | US-20120122701-$ | US-20120165203-$ | US-20120185176-$ | US-20120190020-$ | US-20120190021-$ | US-20120191358-$ | US-20120196754-$ | US-20120214678-$ | US-20120264121-$ | US-20120270212-$ | US-20130116130-$ | US-20130130923-$ | US-20130017549-$ | US-20130024127-$ | US-20130034546-$ | US-20130060483-$ | US-20130069869-$ | US-20130090250-$ | US-20130123120-$ | US-20130178373-$ | US-20130190653-$ | US-20130196862-$ | US-20130210644-$ | US-20130225422-$ | US-20130252824-$ | US-20130253369-$ | US-20130261004-$ | US-20130274116-$ | US-20130303461-$ | US-20130323731-$ | US-20130325360-$ | US-20140038830-$ | US-20140227705-$ | US-20140256558-$ | US-20140272956-$ | US-20140287934-$ | US-20140032128-$ | US-20140051585-$ | US-20140065621-$ | US-20140087385-$ | US-20140094373-$ | US-20140100126-$ | US-20140100134-$ | US-20140141981-$ | US-20140154682-$ | US-20140155274-$ | US-20140162269-$ | US-20140193816-$ | US-20140206552-$ | US-20140256569-$ | US-20140329245-$ | US-20140336060-$ | US-20150197786-$ | US-20150265995-$ | US-20150051087-$ | US-20150064695-$ | US-20150147815-$ | US-20150232938-$ | US-20160201124-$ | US-20160257993-$ | US-20160289740-$ | US-20160289753-$ | US-20160312276-$ | US-20160319345-$ | US-20160145682-$ | US-20160369333-$ | US-20170121716-$ | US-20170342477-$ | US-20180148777-$).DID.						
((US-20060210997-$ | US-20060216738-$ | US-20060281105-$ | US-20070020640-$ | US-20070042384-$ | US-20070128624-$ |	PGPB	14	ADJ	YES	ASSIGNEE	06-10-2020

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US-20070027636-$ | US-20070059707-$ |						
US-20070122805-$ | US-20070178478-$ |						
US-20070178501-$ | US-20070184467-$ |						
US-20070202525-$ | US-20070202536-$ |						
US-20070207466-$ | US-20070212689-$ |						
US-20070243549-$ | US-20070259351-$ |						
US-20080090239-$ | US-20080138809-$ |						
US-20080220422-$ | US-20080020390-$ |						
US-20080026390-$ | US-20080038733-$ |						
US-20080070792-$ | US-20080071076-$ |						
US-20080085836-$ | US-20080096766-$ |						
US-20080102455-$ | US-20080182244-$ |						
US-20080193927-$ | US-20080234142-$ |						
US-20080243398-$ | US-20080305473-$ |						
US-20090143570-$ | US-20090023190-$ |						
US-20090029377-$ | US-20090087847-$ |						
US-20090098534-$ | US-20090099041-$ |						
US-20090176662-$ | US-20090221620-$ |						
US-20090317817-$ | US-20100129874-$ |						
US-20100273678-$ | US-20100035232-$ |						
US-20100112575-$ | US-20100112590-$ |						
US-20100120038-$ | US-20100124751-$ |						
US-20100138165-$ | US-20100171954-$ |						
US-20100184069-$ | US-20100184152-$ |						
US-20100196892-$ | US-20100203538-$ |						
US-20100216153-$ | US-20100248231-$ |						
US-20100255492-$ | US-20100256013-$ |						
US-20100285537-$ | US-20100291572-$ |						
US-20100291635-$ | US-20100323352-$ |						
US-20110071031-$ | US-20110159499-$ |						
US-20110160078-$ | US-20110033862-$ |						
US-20110039724-$ | US-20110086769-$ |						
US-20110092763-$ | US-20110105353-$ |						
US-20110151442-$ | US-20110178719-$ |						
US-20110201507-$ | US-20110224087-$ |						
US-20110246083-$ | US-20110251149-$ |						
US-20110288780-$ | US-20110300608-$ |						
US-20110318734-$ | US-20120010085-$ |						
US-20120295819-$ | US-20120003635-$ |						
US-20120034603-$ | US-20120122701-$ |						
US-20120165203-$ | US-20120185176-$ |						
US-20120190020-$ | US-20120190021-$ |						
US-20120191358-$ | US-20120196754-$ |						
US-20120214678-$ | US-20120264121-$ |						
US-20120270212-$ | US-20130116130-$ |						
US-20130130923-$ | US-20130017549-$ |						
US-20130024127-$ | US-20130034546-$ |						
US-20130060483-$ | US-20130069869-$ |						
US-20130090250-$ | US-20130123120-$ |						
US-20130178373-$ | US-20130190653-$ |						
US-20130196862-$ | US-20130210644-$ |						

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US-20130225422-$ | US-20130252824-$ | US-20130253369-$ | US-20130261004-$ | US-20130274116-$ | US-20130303461-$ | US-20130323731-$ | US-20130325360-$ | US-20140038830-$ | US-20140227705-$ | US-20140256558-$ | US-20140272956-$ | US-20140287934-$ | US-20140032128-$ | US-20140051585-$ | US-20140065621-$ | US-20140087385-$ | US-20140094373-$ | US-20140100126-$ | US-20140100134-$ | US-20140141981-$ | US-20140154682-$ | US-20140155274-$ | US-20140162269-$ | US-20140193816-$ | US-20140206552-$ | US-20140256569-$ | US-20140329245-$ | US-20140336060-$ | US-20150197786-$ | US-20150265995-$ | US-20150051087-$ | US-20150064695-$ | US-20150147815-$ | US-20150232938-$ | US-20160201124-$ | US-20160257993-$ | US-20160289740-$ | US-20160289753-$ | US-20160312276-$ | US-20160319345-$ | US-20160145682-$ | US-20160369333-$ | US-20170121716-$ | US-20170342477-$ | US-20180148777-$).DID.) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
(US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ | US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$).DID.	PGPB	23	ADJ	YES	ASSIGNEE	06-10-2020
((US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ | US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ |	PGPB	7	ADJ	YES	ASSIGNEE	06-10-2020

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US-20190203294-$).DID.) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
(US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ | US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$ | US-20190211391-$ | US-20190211392-$ | US-20190211393-$ | US-20190211399-$ | US-20190211402-$ | US-20190211406-$ | US-20190249241-$ | US-20190256906-$ | US-20190256907-$ | US-20190256909-$ | US-20190256916-$ | US-20190256917-$ | US-20190264277-$ | US-20190264280-$ | US-20190264288-$ | US-20190271043-$ | US-20190276888-$ | US-20190284623-$ | US-20190300950-$ | US-20190309358-$ | US-20190309359-$ | US-20190309365-$ | US-20190316184-$).DID.	PGPB	46	ADJ	YES	ASSIGNEE	06-10-2020
((US-20180155775-$ | US-20180155776-$ | US-20180155779-$ | US-20180155785-$ | US-20180155786-$ | US-20180155792-$ | US-20180171409-$ | US-20180171420-$ | US-20180173845-$ | US-20180173846-$ | US-20180201995-$ | US-20180237841-$ | US-20180298439-$ | US-20180300448-$ | US-20190010543-$ | US-20190106737-$ | US-20190106751-$ | US-20190185913-$ | US-20190185936-$ | US-20190194743-$ | US-20190194759-$ | US-20190203290-$ | US-20190203294-$ | US-20190211391-$ | US-20190211392-$ | US-20190211393-$ | US-20190211399-$ | US-20190211402-$ | US-20190211406-$ | US-20190249241-$ | US-20190256906-$ | US-20190256907-$ | US-20190256909-$ | US-20190256916-$ | US-20190256917-$ | US-20190264277-$ | US-20190264280-$ | US-20190264288-$ | US-20190271043-$ | US-20190276888-$ | US-20190284623-$ | US-20190300950-$ | US-20190309358-$ | US-20190309359-$ | US-20190309365-$ | US-20190316184-$).DID.	PGPB	10	ADJ	YES	ASSIGNEE	06-10-2020

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) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
("10081839" | "10083273" | "10308981" | "10316362").pn.	PGPB	0	ADJ	YES	ASSIGNEE	06-10-2020
("10081839" | "10083273" | "10308981" | "10316362").pn.	USPT	4	ADJ	YES	ASSIGNEE	06-10-2020
("20010051341" | "20010053519" | "20020006622" | "20020107640" | "20030009295" | "20030065535" | "20030077586" | "20030101000" | "20030119004" | "20030228613" | "20040033596" | "20040137470" | "20040146866" | "20040157243" | "20040197797" | "20040209299" | "20040229231" | "20040236518" | "20040259100" | "20050009069" | "20050049793" | "20050053950" | "20050079535" | "20050123914" | "20050130173" | "20050142577" | "20050144664" | "20050164241" | "20050216207" | "20050221341" | "20050227263" | "20050250111" | "20050255508" | "20050272073" | "20060019278" | "20060040300" | "20060052945" | "20060057618" | "20060068394" | "20060088574" | "20060099614" | "20060121452" | "20060134662" | "20060141499" | "20060210997" | "20060216738" | "20060229823" | "20060248031" | "20060281105").PN.	PGPB	49	ADJ	YES	ASSIGNEE	06-10-2020
(("20010051341" | "20010053519" | "20020006622" | "20020107640" | "20030009295" | "20030065535" | "20030077586" | "20030101000" | "20030119004" | "20030228613" | "20040033596" | "20040137470" | "20040146866" | "20040157243" | "20040197797" | "20040209299" | "20040229231" | "20040236518" | "20040259100" | "20050009069" | "20050049793" | "20050053950" | "20050079535" | "20050123914" | "20050130173" | "20050142577" | "20050144664" | "20050164241" | "20050216207" | "20050221341" | "20050227263" | "20050250111" |	PGPB	3	ADJ	YES	ASSIGNEE	06-10-2020

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"20050255508" | "20050272073" | "20060019278" | "20060040300" | "20060052945" | "20060057618" | "20060068394" | "20060088574" | "20060099614" | "20060121452" | "20060134662" | "20060141499" | "20060210997" | "20060216738" | "20060229823" | "20060248031" | "20060281105").PN.) and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and lung near3 (cancer or tumor)						
Natera.asn. and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and progress$8	PGPB	27	ADJ	YES	ASSIGNEE	06-10-2020
Natera.asn. and (cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and progress$8	USPT	12	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)	PGPB	141	ADJ	YES	ASSIGNEE	06-10-2020
((cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)) and tumor near3 heterogen$8	PGPB	72	ADJ	YES	ASSIGNEE	06-10-2020
((cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)) and tumor near3 heterogen$8	PGPB	72	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)	USPT	70	ADJ	YES	ASSIGNEE	06-10-2020
((cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or	USPT	22	ADJ	YES	ASSIGNEE	06-10-2020

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variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)) and tumor near3 heterogen$8						
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)	PGPB	141	ADJ	YES	ASSIGNEE	06-10-2020
(cell-free or cell free or circulat$5) near3 (DNA or RNA or nucleic) and (cancer or tumor) and sequencing and (mutation or variant or alteration or polymorphism or SNP) near3 (clonal or subclonal or sub-clonal)	DWPI	6	ADJ	YES	ASSIGNEE	06-10-2020
US-20150087535-A1.did.	PGPB	1	ADJ	YES	ASSIGNEE	06-10-2020
("10179937" | "10597708" | "10711309" | "10731220" | "10774380" | "10793912" | "20040009518" | "20110130558" | "20120270739" | "20150315657" | "20160244838" | "20170107576" | "20200181697" | "20200190570" | "20200190573" | "20200190591" | "20200208196" | "20200208221" | "20200224273" | "20200232036" | "20200232037" | "20200248264" | "20200248266" | "20200318191" | "20200347454" | "20200350034" | "6927028" | "7410764").PN.	PGPB, USPT	28	ADJ	YES	ASSIGNEE	12-22-2020
Guardant Health.asn. and (cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8	PGPB	3	ADJ	YES	ASSIGNEE	12-22-2020
14/425589.app.	PGPB	1	ADJ	YES	ASSIGNEE	12-22-2020
14/425189.app.	PGPB	1	ADJ	YES	ASSIGNEE	12-22-2020
16/288351.app.	PGPB	1	ADJ	YES	ASSIGNEE	12-22-2020
(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	PGPB	48	ADJ	YES	ASSIGNEE	12-22-2020
	PGPB	48	ADJ	YES	ASSIGNEE	12-22-2020

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(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)						
(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	USPT	23	ADJ	YES	ASSIGNEE	12-22-2020
(cell-free or cell free or circulat$8) near3 (DNA or nucleic) and (cell-free or cell free or circulat$8) near3 barcod$8 and sequencing and (mutation or polymorphism or SNV) near3 detect$8 and ((C12Q1/6869 | C12Q2600/156 | G16B20/20).CPC.)	DWPI	1	ADJ	YES	ASSIGNEE	12-22-2020
16/288351.app.	PGPB	1	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	202	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	202	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	USPT	185	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and (ultrasensitive or rare) near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20	DWPI	1	ADJ	YES	ASSIGNEE	09-07-2021

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).CPC.)						
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and limit of detection near5 0.01((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	0	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) near5 0.01((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	0	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) near5 0.01 and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	0	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	PGPB	21	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)	USPT	7	ADJ	YES	ASSIGNEE	09-07-2021
(cell-free or cell free or circulat$8) near3 DNA and low near3 frequency near3 (mutation or polymorphism or SNP or SNV or variant) and sequencing and multiplex$7 near3 (PCR or amplif$8) and (limit of	DWPI	0	ADJ	YES	ASSIGNEE	09-07-2021

NeoGenomics
Exhibit 1003 Page 369

detection or LOD) and ((C12Q1/6869 | C12Q2600/156 | C12Q2600/16 | G16B20/20).CPC.)						

NeoGenomics
Exhibit 1003 Page 370

PALM INTRANET

Day : Tuesday
Date: 9/7/2021
Time: 12:47:39

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	First Name	
Babiarz	Joshua	Search

To Go BACK Use BACK Button on Your BROWSER Tool Bar
Back to PALM | ASSIGNMENT | OASIS | Home page

NeoGenomics
Exhibit 1003 Page 371

PALM INTRANET

Day : Tuesday
Date: 9/7/2021
Time: 12:47:39

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	First Name	
Constantin	Tudor	Search

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PALM INTRANET

Day : Tuesday
Date: 9/7/2021
Time: 12:47:39

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	First Name	
Eubank	Lane	Search

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Exhibit 1003 Page 373

PALM INTRANET

Day : Tuesday
Date: 9/7/2021
Time: 12:47:39

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	First Name	
Gemelos	George	Search

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NeoGenomics
Exhibit 1003 Page 374

PALM INTRANET

Day : Tuesday
Date: 9/7/2021
Time: 12:47:39

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	**First Name**	
Hill	Matthew	Search

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NeoGenomics
Exhibit 1003 Page 375

PALM INTRANET

Day : Tuesday
Date: 9/7/2021
Time: 12:47:39

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	First Name	
Kirkizlar	Huseyin	Search

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Back to PALM | ASSIGNMENT | OASIS | Home page

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Exhibit 1003 Page 376

PALM INTRANET

Day : Tuesday
Date: 9/7/2021
Time: 12:47:39

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	First Name	
Rabinowitz	Matthew	Search

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Exhibit 1003 Page 377

PALM INTRANET

Day : Tuesday
Date: 9/7/2021
Time: 12:47:39

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	First Name	
Sakarya	Onur	Search

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Exhibit 1003 Page 378

PALM INTRANET

Day : Tuesday
Date: 9/7/2021
Time: 12:47:39

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	First Name	
Sigurjonsson	Styrmir	Search

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Exhibit 1003 Page 379

PALM INTRANET

Day : Tuesday
Date: 9/7/2021
Time: 12:47:39

Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.
Additionally, enter the **first few letters** of the Inventor's First name.

Last Name	**First Name**	
Zimmermann	Bernhard	Search

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Web Search History

date, time	web site	search string
9/7/2021 4:38:25 PM	Google	sequencing mutations "limit of detection" 0.01%
9/7/2021 4:44:43 PM	Google	sequencing mutations cell-free DNA "limit of detection" 0.01%
9/7/2021 4:51:13 PM	Google	sequencing cell-free DNA "rare mutation"
9/7/2021 5:12:56 PM	Google	sequencing cell-free DNA low frequency mutation
9/7/2021 5:23:25 PM	Google	sequencing cell-free DNA lultrasensitive mutation detection
9/7/2021 5:23:46 PM	Google	sequencing cell-free DNA ultrasensitive mutation detection

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16288351	Filing Date	2019-02-28	Docket Number (if applicable)	N.012.US.10	Art Unit	1637
First Named Inventor	Joshua BABIARZ			Examiner Name	Teresa Strzelecka		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☑ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☑ Other Response to Final Office Action previously filed on June 1, 2021

☐ Enclosed

☐ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☑ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 506075

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

✓ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Tianran Yan/	Date (YYYY-MM-DD)	2021-06-29
Name	Tianran Yan	Registration Number	67162

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	16288351
Filing Date:	28-Feb-2019
Title of Invention:	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS
First Named Inventor/Applicant Name:	Joshua BABIARZ
Filer:	Anton John Bokal/Angela McGowan
Attorney Docket Number:	N.012.US.10

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $640 paid	1253	1	840	840
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1360	1360
		Total in USD ($)		**2200**

Electronic Acknowledgement Receipt

EFS ID:	43123897
Application Number:	16288351
International Application Number:	
Confirmation Number:	1764
Title of Invention:	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS
First Named Inventor/Applicant Name:	Joshua BABIARZ
Customer Number:	110711
Filer:	Anton John Bokal/Angela McGowan
Filer Authorized By:	Anton John Bokal
Attorney Docket Number:	N.012.US.10
Receipt Date:	29-JUN-2021
Filing Date:	28-FEB-2019
Time Stamp:	16:42:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$2200
RAM confirmation Number	E20216SG42481861
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	N012US10_RCE_SIGNED.pdf	1351851 22b0a92ada92cc3fe540b3d9bad374077f5a6483	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32820 08b99b3655fc123382d064b875375ecd41a07c59	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1384671		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/288,351	02/28/2019	Joshua BABIARZ	N.012.US.10	1764

110711 7590 06/16/2021

Natera, Inc.
201 Industrial Road
Suite 410
San Carlos, CA 94070

EXAMINER	
STRZELECKA, TERESA E	

ART UNIT	PAPER NUMBER
1637	

NOTIFICATION DATE	DELIVERY MODE
06/16/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IP@natera.com

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 16/288,351	**Applicant(s)** BABIARZ et al.	
	Examiner TERESA E STRZELECKA	**Art Unit** 1637	**AIA (FITF) Status** Yes

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 01 June 2021 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☑ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☑ The period for reply expires 3 months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☑ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☑ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: The amendments require new search and consideration (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicants reply has overcome the following rejection(s): _____
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☑ For purposes of appeal, the proposed amendment(s):(a) ☑ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☑ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: The amendment was not entered, therefore Applicant's arguments are moot..
13. ☑ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). 2/4/21; 4/21/21; 6/1/21
14. ☑ Other: PTO-2323.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:_____.
    Claim(s) rejected:1-3,7,11-12,14-16,20 and 23-26.
    Claim(s) withdrawn from consideration:4,6,9-10,13,17-19 and 21-22.

/TERESA E STRZELECKA/ Primary Examiner, Art Unit 1637	

AFCP 2.0 Decision

Application No.	Applicant(s)	
16/288,351	BABIARZ et al.	
Examiner	**Art Unit**	**AIA (FITF) Status**
TERESA E STRZELECKA	1637	Yes

This is in response to the After Final Consideration Pilot request filed 01 June 2021.

1. **Improper Request** – The AFCP 2.0 request is improper for the following reason(s) and the after final amendment submitted with the request will be treated under pre-pilot procedure.

   ☐ An AFCP 2.0 request form PTO/SB/434 (or equivalent document) was not submitted.

   ☐ A non-broadening amendment to at least one independent claim was not submitted.

   ☐ The request is not the first proper AFCP 2.0 request submitted in response to the most recent final rejection.

   ☑ Other: Applicant's amendments require additional search and consideration.

2. **Proper Request**

   A. After final amendment submitted with the request will not be treated under AFCP 2.0.
   The after final amendment cannot be reviewed and a search conducted within the guidelines of the pilot program.

   ☑ The after final amendment will be treated under pre-pilot procedure.

   B. Updated search and/or completed additional consideration.
   The examiner performed an updated search and/or completed additional consideration of the after final amendment within the time authorized for the pilot program. The result(s) of the updated search and/or completed additional consideration are:

   ☐ 1. All of the rejections in the most recent final Office action are overcome and a Notice of Allowance is issued herewith.

   ☐ 2. The after final amendment would not overcome all of the rejections in the most recent final Office action . See attached interview summary for further details.

   ☐ 3. The after final amendment was reviewed, and it raises a new issue(s). See attached interview summary for further details.

   ☐ 4. The after final amendment raises new issues, but would overcome all of the rejections in the most recent final Office action. A decision on determining allowability could not be made within the guidelines of the pilot. See attached interview summary for further details, including any newly discovered prior art.

   ☐ 5. Other: _____

   Examiner Note: Please attach an interview summary when necessary as described above.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/288,351
	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

U.S. PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

U.S. PATENT APPLICATION PUBLICATIONS

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/288,351
	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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Examiner Signature	/TERESA E STRZELECKA/	Date Considered	06/11/2021

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		2010/127186	WO	A1	2010-11-04	CHEE, M. S.		
		2011/051283	WO	A1	2011- 05-05	BENZ, M. et al.		

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor Name:	Joshua BABIARZ
Title:	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS
Application No.:	16/288,351
Filing Date:	2/28/2019
Examiner:	STRZELECKA, TERESA E
Art Unit:	1637
Conf. No.:	1764

AMENDMENT AND REPLY UNDER 37 CFR 1.116

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This communication is responsive to the final Office Action mailed December 30, 2020, 2021, concerning the above-referenced patent application.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks begin on page 5 of this document.

Please amend the application as follows:

NeoGenomics
Exhibit 1003 Page 405

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	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
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Examiner Signature	/TERESA E STRZELECKA/	Date Considered	06/11/2021

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
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Signature	/Tianran Yan/	Date (YYYY-MM-DD)	2021-06-01
Name/Print	Tianran Yan	Registration Number	67,162

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[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/288,351
	Filing Date	Feb 28, 2019
	First Named Inventor	Joshua BABIARZ
	Art Unit	1637
	Examiner Name	Teresa E. Strzelecka
	Attorney Docket Number	N.012.US.10

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

The submission of this Information Disclosure Statement does not constitute an admission that a search was made, does not constitute an admission that any information cited is prior art, and does not constitute an admission that no other or better art exists.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Tianran Yan/	Date (YYYY-MM-DD)	2021-06-01
Name/Print	Tianran Yan	Registration Number	67,162

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/288,351	06/01/2021 05:27:40 PM ET	N.012.US.10

Title of Invention

DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1764	FILED BY	Angela McGowan
PATENT CENTER #	60205608	AUTHORIZED BY	Anton Bokal
CUSTOMER #	110711	FILING DATE	02/28/2019
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Joshua BABIARZ

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
DA / 506075	E202161H28192274	Angela McGowan

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1252	EXTENSION FOR RESPONSE WITHIN SECOND MONTH	640.00	1	640.00
1806	SUBMISSION OF AN INFORMATION DISCLOSURE STATEMENT	260.00	1	260.00
			TOTAL AMOUNT:	$900.00

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d)

and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: A.NE.AFCP
Document Description: After Final Consideration Pilot Program Request

PTO/SB/434 (05-13)

CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0

Practitioner Docket No.:	Application No.:	Filing Date:
N.012.US.10	16/288,351	2/28/2019
First Named Inventor:	**Title:**	
Joshua BABIARZ	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS	

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116.

1. The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (*e.g.*, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c).
2. The above-identified application contains an outstanding final rejection.
3. Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect.
4. This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection.
5. Applicant is willing and available to participate in any interview requested by the examiner concerning the present response.
6. This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web).
7. Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, *e.g.*, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.]
8. By filing this certification and request, applicant acknowledges the following:
    - Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0.
    - The examiner will verify that the AFCP 2.0 submission is compliant, *i.e.*, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions:
        - The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, *e.g.*, by mailing an advisory action.
        - If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview.
            - The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate.
            - If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116.

Signature	Date
/Tianran Yan/	6-1-2021
Name (Print/Typed) Tianran Yan	Practitioner Registration No. 67,162

***Note**: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.*

☑ * Total of 1 forms are submitted.

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The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
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Title of Invention

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PATENT CENTER #	60205608	FILING DATE	02/28/2019
CUSTOMER #	110711	FIRST NAMED INVENTOR	Joshua BABIARZ
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Anton Bokal

Documents

TOTAL DOCUMENTS: 92

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
03_N012US10_SB08_SIGNED.pdf	14	Information Disclosure Statement (IDS) Form (SB08)	147 KB
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Digest

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor Name:	Joshua BABIARZ
Title:	DETECTING MUTATIONS AND PLOIDY IN CHROMOSOMAL SEGMENTS
Application No.:	16/288,351
Filing Date:	2/28/2019
Examiner:	STRZELECKA, TERESA E
Art Unit:	1637
Conf. No.:	1764

AMENDMENT AND REPLY UNDER 37 CFR 1.116

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

This communication is responsive to the final Office Action mailed December 30, 2020, 2021, concerning the above-referenced patent application.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks begin on page 5 of this document.

Please amend the application as follows:

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (**Currently Amended**) A method for preparing biological samples useful for monitoring the progression of cancer in a subject, the method comprising:

(a) performing sequencing on a tumor biopsy sample of the subject to identify a plurality of tumor-specific mutations, wherein the tumor-specific mutations comprise one or more single nucleotide variant (SNV) mutations;

(b) evaluating results of the sequencing on the tumor biopsy sample to determine a plurality of target loci specific to the subject, wherein each target locus spans a tumor-specific mutation of the identified plurality of tumor-specific mutations; and

(c) assaying cell-free DNA isolated from a plurality of biological samples obtained from the subject at different time points, wherein the assaying comprises:

performing targeted multiplex PCR amplification to amplify[[ing]] the plurality of target loci together in the same reaction volume from the isolated cell-free DNA using primers specific to the plurality of target loci for the individual subject; and

performing high-throughput sequencing of the amplified DNA comprising the plurality of target loci to obtain sequence reads, wherein an SNV mutation that is present in less than or equal to 0.015% of the cell-free DNA having the SNV locus is detected from the sequence reads.

2. (Original) The method of claim 1, wherein the cell-free DNA comprises circulating tumor DNA.

3. (Cancelled)

4. (Withdrawn) The method of claim 1, wherein the tumor-specific mutations comprise one or more copy number variation (CNV) mutations.

5. (Cancelled)

6. (Withdrawn) The method of claim 1, wherein the tumor-specific mutations comprise one or more SNV mutations in a gene selected from the group consisting of CYFIP1, FAT1, MLLT4, RASA1, HERC4, JAK2, MSH2, MTOR, PLCG2, GABRG1, and TRIM67.

7. (Previously Presented) The method of claim 1, wherein the tumor-specific mutations comprise one or more clonal SNV mutations.

8. (Cancelled)

9. (Withdrawn) The method of claim 1, wherein the tumor-specific mutations comprise one or more subclonal SNV mutations.

10. (Withdrawn) The method of claim 9, wherein at least one subclonal SNV mutation is in a gene selected from the group consisting of CIC, KDM6A, NF1, and TRIM67.

11. (Previously Presented) The method of claim 1, wherein the tumor-specific mutations comprise one or more clonal SNV mutations and one or more subclonal SNV mutations.

12. (Previously Presented) The method of claim 1, wherein the method further comprises determining clonal heterogeneity of the cancer sample.

13. (Withdrawn) The method of claim 1, wherein the method further comprises designing targeted PCR assays for the tumor-specific mutations identified in the cancer sample.

14. (Cancelled)

15. (**Currently Amended**) The method of claim 1[[4]], wherein amplifying comprises targeted multiplex PCR amplification of 10 to 50 of the target loci.

16-17. (Cancelled)

18. (Withdrawn) The method of claim 1, wherein the method further comprises detecting recurrence and/or metastases of the cancer from the tumor-specific mutations detected in the cell-free DNA.

19. (Withdrawn) The method of claim 1, wherein the cancer is colorectal cancer.

20. (Original) The method of claim 1, wherein the cancer is lung cancer.

21. (Withdrawn) The method of claim 1, wherein the cancer is bladder cancer.

22. (Withdrawn) The method of claim 1, wherein the cancer is breast cancer.

23. (Original) The method of claim 1, wherein the biological sample is a blood, serum, plasma, or urine sample.

24. (Previously Presented) The method of claim 1, wherein step (a) comprises performing whole exome sequencing on a tumor biopsy sample of the subject to identify the plurality of tumor-specific mutations.

25-26. (Cancelled)

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and the reasons that follow.

Status of Claims

Claims 1-4, 6-7 and 9-26 were pending in the subject case, with claims 4, 6, 9-10, 13, 17-19 and 21-22 withdrawn. With this submission, claims 1 and 15 are amended to more clearly and particularly describe the claimed invention, with support in claims 3, 14 and 16 and in the published application (US2019/0194758) at paragraphs 0052, 0060, 0412 and 0538. Claims 3, 14, 16-17 and 25-26 are cancelled without prejudice or disclaimer thereof. No new matter has been introduced. After amending the claims as set forth above, claims 1-2, 4, 6-7, 9-13, 15, and 18-24 will remain pending in this application.

Claim Rejections Under 35 U.S.C. § 112

Claims 25-26 are rejected under 35 U.S.C. § 112(a) for allegedly failing to comply with the written description requirement. Claim 26 is also rejected under 35 U.S.C. § 112(b) for alleged indefiniteness. The cancellation of claims 25-26 renders these rejections moot.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-3, 7, 11, 20 and 23-25 are rejected under 35 U.S.C. § 102(a)(2) for allegedly being anticipated over US2016/0032396 ("Diehn"). Applicant respectfully traverses this rejection. Previous claims 14 and 16 stand free of the subject rejection. For the sole purpose of expediting prosecution and without acquiescing to the rejection, Applicant has amended independent claim 1 to incorporate the subject matter of previous claims 14 and 16 (i.e., "targeted multiplex PCR amplification" and "high-throughput sequencing"), thereby rendering the subject rejection moot.

Claim Rejections Under 35 U.S.C. § 103

Claim 12 is rejected under 35 U.S.C. § 103 for allegedly being unpatentable over Diehn and Murtaza *et al.* 2013 ("Murtaza"). Applicant respectfully traverses this rejection. Previous claims 14 and 16 stand free of the subject rejection. For the sole purpose of expediting prosecution and without acquiescing to the rejection, Applicant has amended independent claim 1 to incorporate the subject matter of previous claims 14 and 16, thereby rendering the subject rejection moot.

Claims 14-16 are rejected under 35 U.S.C. § 103 for allegedly being unpatentable over Diehn, Mertes *et al.*, 2011 ("Mertes"), Nguyen-Dumont *et al.*, 2013 ("Nguyen-Dumont"), and Wang *et al.* 1998 ("Wang"). Applicant respectfully traverses this rejection.

For the sole purpose of expediting prosecution and without acquiescing to the rejection, Applicant has amended independent claim 1 to recite:

> 1. A method for preparing biological samples useful for monitoring the progression of cancer in a subject, the method comprising:
> (a) performing sequencing on a tumor biopsy sample of the subject to identify a plurality of tumor-specific mutations, wherein the tumor-specific mutations comprise one or more single nucleotide variant (SNV) mutations;
> (b) evaluating results of the sequencing on the tumor biopsy sample to determine a plurality of target loci specific to the subject, wherein each target locus spans a tumor-specific mutation of the identified plurality of tumor-specific mutations; and
> (c) assaying cell-free DNA isolated from a plurality of biological samples obtained from the subject at different time points, wherein the assaying comprises:
> performing targeted multiplex PCR amplification to amplify the plurality of target loci together in the same reaction volume from the isolated cell-free DNA using primers specific to the plurality of target loci for the individual subject; and
> performing high-throughput sequencing of the amplified DNA comprising the plurality of target loci to obtain sequence reads, wherein an SNV mutation that is present in less than or equal to 0.015% of the cell-free DNA having the SNV locus is detected from the sequence reads.

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Diehn, the primary reference, fails to teach or suggest "performing targeted multiplex PCR amplification to amplify the plurality of target loci together in the same reaction volume from the isolated cell-free DNA using primers specific to the plurality of target loci for the individual subject." The Office acknowledges that Diehn "do not teach multiplex PCR," but alleges that "Mertes et al. teach that selection and enrichment of sequences to be used in [NGS] can be performed using…PCR," that "Nguyen-Dumont et al. teach successful amplification of 60 different target in a single PCR reaction," and that "Wang et al. teach multiplex amplification of target genomic fragments for detection of SNPs on microarray" (Office Action, pg. 10-11).

Mertes merely provides a review of various target enrichment methods for sequencing. Mertes fails to teach or suggest performing targeted multiplex PCR on cell-free DNA as opposed to cellular DNA, or the challenges associated with amplifying a plurality of target loci in the same reaction volume from a cell-free DNA sample.

Nguyen-Dumont discloses performing a 60-plex PCR on FFPE tumor-derived cellular DNA, followed by massively parallel sequencing. Wang discloses performing a 46-plex PCR on cellular DNA, followed by genotyping on microarray. Neither Nguyen-Dumont nor Wang teaches or suggests performing targeted multiplex PCR on cell-free DNA as opposed to cellular DNA.

In addition, Diehn also fails to teach or suggest "performing high-throughput sequencing of the amplified DNA comprising the plurality of target loci to obtain sequence reads, wherein an SNV mutation that is present in less than or equal to 0.015% of the cell-free DNA having the SNV locus is detected from the sequence reads." In contrast to the presently claimed invention, Diehn discloses "NSCLC DNA were accurately detected at fractional abundances between 0.025% and 10%" (paragraph 0792) and "fractions of tumor-derived DNA detected in plasma by SNV and/or indel reporters ranged from ~0.02% to 3.2%" (paragraph 0797). Further, Murtaza discloses detection of mutant allele frequency (AF) between 3% to 34% in patient plasma samples (Table 1).

Mertes merely provides a review of various target enrichment methods for sequencing. Nguyen-Dumont discloses performing a 60-plex PCR on FFPE tumor-derived cellular DNA, followed by massively parallel sequencing. Mertes and Nguyen-Dumont fail to teach or suggest anything about performing high-throughput sequencing of amplified DNA that are amplified from a cell-free DNA sample, let alone about detection of an SNV mutation that is present in less than or equal to 0.015% of the cell-free DNA having said SNV locus from the sequence reads.

Wang discloses performing a 46-plex PCR on cellular DNA, followed by genotyping on microarray. Wang fails to teach or suggest high-throughput sequencing at all, let alone about detection of an SNV mutation that is present in less than or equal to 0.015% of the cell-free DNA having said SNV locus from the sequence reads.

Accordingly, none of Mertes, Nguyen-Dumont, or Wang would have guided a person having ordinary skill in the art to arrive at the presently claimed invention by modifying Diehn. And the cited references would not have provided the alleged reasonable expectation of success for modifying Diehn to arrive the presently claimed invention.

For at least these reasons, a person having ordinary skill in the art would **not** have found the presently claimed invention obvious over the cited references. Reconsideration and withdrawal of the subject rejection are therefore respectfully requested.

Double Patenting

Claims 1-3, 7, 11-12, 14-16, 20 and 23-24 are provisionally rejected on the ground of nonstatutory double patenting for allegedly being unpatentable over claims of copending Application No. 16/288,416.

Claims 1-3, 7, 11-12, 14-16, 20 and 23-24 are provisionally rejected on the ground of nonstatutory double patenting for allegedly being unpatentable over claims of copending Application No. 16/288,462.

Claims 1-3, 7, 11-12, 14-16, 20 and 23-24 are provisionally rejected on the ground of nonstatutory double patenting for allegedly being unpatentable over claims of copending Application No. 16/399,941.

Applicant respectfully traverses these rejections. For the sole purpose of expediting prosecution and without acquiescing to the rejection, Applicant submits a terminal disclaimer over (i) U.S. Application No. 16/288,416, (ii) U.S. Application No. 16/288,462, and (iii) U.S. Application No. 16/399,941 to overcome the subject rejections.

Concluding Remarks

Applicant believes that the application is in condition for allowance. Favorable reconsideration is respectfully requested. The Examiner is invited to contact the undersigned to advance prosecution.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-6075. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extension fees to Deposit Account No. 50-6075.

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Respectfully submitted,

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