

EXHIBIT 1
(PART 2 OF 2)

FAR CODE LABEL



U.S. PATENT APPLICATION


SERIAL NUMBER 08/487,002	FILING DATE 06/07/95	CLASS 435	GROUP ART UNIT 1805		
<div style="display: flex;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; margin-right: 10px;">APPLICANT</div> <div> <p>MARK H. SKOLNICK, SALT LAKE CITY, UT; DAVID E. GOLDFAR, SALT LAKE CITY, UT; YOSHIO MIKI, SALT LAKE CITY, UT; JEFF SWENSON, SALT LAKE CITY, UT; ALEXANDER KAMB, SALT LAKE CITY, UT; KEITH D. HARSHMAN, SALT LAKE CITY, UT; DONNA M. SHATTUCK-EIDENS, SALT LAKE CITY, UT; SEAN V. TAVTIGIAN, SALT LAKE CITY, UT; ROGER W. WISEMAN, DURHAM, NC; P. ANDREW FUTREAL, DURHAM, NC.</p> <p>**CONTINUING DATA*****</p> <p>VERIFIED THIS APPLN IS A CIP OF 08/409,305 03/24/95</p> <p> WHICH IS A CIP OF 08/348,824 11/29/94</p> <p> WHICH IS A CIP OF 08/308,104 09/16/94</p> <p> WHICH IS A CIP OF 08/300,266 09/02/94 ABN</p> <p> WHICH IS A CIP OF 08/289,221 08/12/94</p> <p>**FOREIGN/PCT APPLICATIONS*****</p> <p>VERIFIED</p> </div> </div>					
STATE OR COUNTRY UT	SHEETS DRAWING 19	TOTAL CLAIMS 28	INDEPENDENT CLAIMS 2	FILING FEE RECEIVED \$1,056.00	ATTORNEY DOCKET NO. 24884-109347
<div style="display: flex;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; margin-right: 10px;">TITLE</div> <div> <p>17Q-LINKED BREAST AND OVARIAN CANCER SUSCEPTIBILITY GENE</p> </div> </div>					

This is to certify that annexed hereto is a true copy from the records of the United States Patent and Trademark Office of the application which is identified above.

By authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS

Date

Certifying Officer

Notice of Allowability	Application No. 08/487,002	Applicant(s) Skolnick et al.	
	Examiner Dianne Rees	Group Art Unit 1807	

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 and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to 2/25/97

☒ The allowed claim(s) is/are 1-4, 6-8, 10-14, 16-19, and 29-47

☐ The drawings filed on _____ are acceptable.

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

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.
☐ received in Application No. (Series Code/Serial Number) _____
☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE **THREE MONTHS** FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☒ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.
☒ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. 10 .
☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.
☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☐ Notice of References Cited, PTO-892
☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
☐ Notice of Informal Patent Application, PTO-152
☒ Interview Summary, PTO-413
☒ Examiner's Amendment/Comment
☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
☒ Examiner's Statement of Reasons for Allowance

Art Unit: 1807

DETAILED ACTION

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jeffrey Inhen on 4/21/97.

2. The application has been amended as follows:

Claim 48 has been ~~been~~ canceled.

The following is an examiner's statement of reasons for allowance:

The claims are drawn to methods of screening a tumor sample for a somatic alteration in a BRCA1 gene by detecting changes in the structure and/or expression of the gene and its products (transcripts and proteins expressed by said transcripts). In a further embodiment of the invention, the detection of specific mutant alleles is recited. Applicants are first to discover the sequence of the wild type BRCA1 gene and disclose and enable the methods of detection recited broadly herein (Applicant's declaration by Dr. Wolfert was considered persuasive with regards to method

Art Unit: 1807

claims employing altered -epitope specific antibodies. The skill in the art in this technology is high and such antibodies have been routinely made for a number of years. It is further noted that workers in the field have generated antibodies to various domains of the BRCA1 protein subsequent to the filing of this application using the same methodology disclosed in the instant application). Detection of somatic alterations are an indication of a progression to neoplasia when such alterations are opposite a chromosome comprising a germline alteration in the BRCA1 gene and thus the present invention provides a useful screening to assess progression to neoplasia in patients with breast or ovarian cancer.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dianne Rees whose telephone number is (703) 308-6565.

Dianne Rees
4/28/97

W. Gary Jones
W. GARY JONES
SUPERVISORY PATENT EXAMINER
GROUP 1800
5/12/97

5753441



PATENT MAY 19 1998 PATENT NUMBER

SERIAL NUMBER 08/488,011 FILING DATE 01/05/95 CLASS 435 SUBCLASS 6 GROUP ART UNIT 7 EXAMINER Rees

APPLICANTS: MARK H. SKOLNICK, SALT LAKE CITY, UT; DAVID E. GOLDBAR, SALT LAKE CITY, UT; YOSHIO MIKI, SALT LAKE CITY, UT; JEFF SWENSON, SALT LAKE CITY, UT; ALEXANDER KAMB, SALT LAKE CITY, UT; KEITH D. HARRISMAN, SALT LAKE CITY, UT; DONNA M. SHATTUCK-RODEND, SALT LAKE CITY, UT; SEAN V. TAVTISIAN, SALT LAKE CITY, UT; ROGER A. WISEMAN, DURHAM, NC; P. ANDREW FUTREAL, DURHAM, NC.

CONTINUING DATA***

VERIFIED THIS APPLN IS A CIP OF 08/409,006 03/24/95
 WHICH IS A CIP OF 08/348,024 11/29/94
 WHICH IS A CIP OF 08/308,194 09/16/94
 WHICH IS A CIP OF 08/300,266 09/02/94 ABN
 WHICH IS A CIP OF 08/289,221 09/12/94

FOREIGN/PCT APPLICATIONS***

VERIFIED

NONE IS START

NOTE-DISCLAIMER

The term of this patent shall not extend beyond the expiration date of Pat. No. 5710001

FOREIGN FILING LICENSE GRANTED 04/05/95

Foreign priority claimed 35 USC 119 conditions met	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	AS FILED	STATE OR COUNTRY	SHEETS DRWS.	TOTAL CLAIMS	INDER. CLAIMS	FILING FEE RECEIVED	ATTORNEY'S DOCKET NO.
Verified and Acknowledged	Examiner's Initials	→	UT	19	27	2	11,034.00	24862-109327

VENABLE BRETHER HOWARD AND ASSOCIATES
 1201 NEW YORK AVENUE NW
 SUITE 1000
 WASHINGTON DC 20005

170- LINKED BREAST AND OVARIAN CANCER SUSCEPTIBILITY REPT

U.S. DEPT. OF COMM./PAT. & TM—PTO-436L (Rev.12-

PARTS OF APPLICATION
 FILED SEPARATELY

NOTICE OF ALLOWANCE MAILED

2297

ISSUE FEE
 Payment Due Date Paid 01/04/98

ISSUE FEE LABEL

WARNING: The information disclosed herein may be restricted. Unauthorized disclosure may be prohibited by the United States Code, Title 35, Sections 122, 181 and 368. Possession outside the U.S. Patent & Trademark Office is restricted to authorized employees and contractors only.

NOT POSTED

DIANNE REES
 Assistant Examiner

W. GARY JONES
 SUPERVISORY PATENT EXAMINER
 #GN33P-1800

Primary Examiner

PREPARED FOR ISSUE

CLAIMS ALLOWED

Total Claims 37 Print Claim 1

DRAWING
 Sheets Drawn 18 Drawn 19 Print Fig 1

ISSUE BATCH NUMBER 28

ISSUE FEE IN FULL

(FACE)

briefed in group 1800

PATENT APPLICATION



08488011

ROVED FOR LICENSE ☐

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08/

08/488011

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Entered
or
Counted

CONTENTS

Date
Received
or
Mailed

1. Application	papers.	
2. Statement	182	6/18/95
3.		8-17-95
4. Raw Seq. Fishing (ok)		8-17-95
5. Draw + Fee		12-1-95
6. Notice of Inv.		4-30-96
7. Rep 3 mos		7-24-96
8. Raw Seq. List		1-5-96
9. OAD Disclosure		10-12-95
10. Supple Disclosure		2-23-96
11. Ltr		5-1-96
12. Motion to make special		6-6-96
13. Amendment		6-6-96
14. Amtd B		6-12-96
15. Supple Amtd C		11-7-96
16. Declaration		11-7-96
17. Supple Amtd D		1-14-97
18. F-Rep 3 Mos		4-15-97
19. Terminal Disclaimer		9/12/97
20. Amtd E (NE) /log listing /disk		4/30/97
21. Interview Summary		5/19/97
22. EXMR'S Amtd F		5-22-97
23. Raw Seq. List		5-6-97
24. Formal Drawings (20 sheets)		7/14/97
25. PTO GRANT MAY 19 1998		7/14/97
26. PTO GRANT MAY 19 1998		
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SEARCHED			
Class	Sub.	Date	Exmr.
435	6	7/9/96	DR
435	91.1		
435	91.2		
435	7.1-7.9		
536	23.1		
536	24.3		
	38		
updated search		4/17/97	DR
updated search		5/18/97	DR
added 436	500		
	435	4	
	424	1.11	
	436	548	
530	387.2		
530	388.1		
424			

INTERFERENCE SEARCHED			
Class	Sub.	Date	Exmr.
435	6	5/12/97	DR
	91.1, 91.2		
	7.1-7.9		
436	4		
	548		
	500		
530	387.2		
424	388.1		
	1.11, 88		
536	23.1		
	24.3		
	24.33		
Seq 13			

SEARCH NOTES		
	Date	Exmr.
APS, SN-see Search notes in related cases, Seq 10's updated search	7/9/96	DR
updated search talked to A. Atzel	4/12/97	DR
updated search	5/18/97	DR

(RIGHT OUTSIDE)

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POSITION	ID NO.	DATE
CLASSIFIER		
EXAMINER	401	8/1/45
TYPIST	442	4/5/96
VERIFIER		
CORPS CORR.		
SPEC. HAND	455	1-5-96
FILE MAINT.	452	8-17-95
DRAFTING		

INDEX OF CLAIMS

Claim	Final	Original	Date
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SYMBOLS

- ✓ Rejected
- Allowed
- (Through numeral) Canceled
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- N Non-elected
- I Interference
- A Appeal
- O Objected

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PATENT NUMBER		ORIGINAL CLASSIFICATION													
		CLASS	SUBCLASS												
		435	6												
APPLICATION SERIAL NUMBER		CROSS REFERENCE(S)													
08488011															
APPLICANT'S NAME (PLEASE PRINT)		(ONE SUBCLASS PER BLOCK)													
SKOLNICK et al		CLASS	SUBCLASS												
PREVIOUS, ORIGINAL PATENT NUMBER		435	9.1												
		435	7.9												
		436	5.18												
		530	387.2												
		424	1.11												
		536	23.1												
			24.33												
INTERNATIONAL CLASSIFICATION		ASSISTANT EXAMINER (PLEASE STAMP OR PRINT FULL NAME)													
<table border="1"> <tr><td>1</td><td>2</td><td>Q</td></tr> <tr><td>1</td><td>2</td><td>P</td></tr> <tr><td>0</td><td>7</td><td>H</td></tr> <tr><td>0</td><td>7</td><td>H</td></tr> </table>		1	2	Q	1	2	P	0	7	H	0	7	H	DIANNE REES	
1	2	Q													
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<table border="1"> <tr><td>1</td><td>68</td></tr> <tr><td>19</td><td>34</td></tr> <tr><td>21</td><td>02</td></tr> <tr><td>21</td><td>04</td></tr> </table>		1	68	19	34	21	02	21	04	PRIMARY EXAMINER (PLEASE STAMP OR PRINT FULL NAME)					
1	68														
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21	02														
21	04														
		W. Gary Jones													

PTO 270
(REV. 5-91)

ISSUE CLASSIFICATION SLIP

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE


Final	Original	
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SYMBOLS

- ✓ Rejected
- ~ Allowed
- (Through numeral) Cancelled
- + Restricted
- N Non-elected
- I Interference
- A Appeal
- O Objected

Claim	Date
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Notice of Allowability	Application No. 08/488,011	Applicant(s) Skolnick et al.	
	Examiner Dianne Rees	Group Art Unit 1807	

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 and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to 9/12/96, 4/30/97.

☒ The allowed claim(s) is/are 1-4, 6-8, 10-13, 13, 14, 14-19, and 28-48.

☐ The drawings filed on _____ are acceptable.

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

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.
☐ received in Application No. (Series Code/Serial Number) _____
☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE **THREE MONTHS FROM THE "DATE MAILED"** of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☒ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.
☒ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. 7.
☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.
☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☐ Notice of References Cited, PTO-892
☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 9, 10
☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
☐ Notice of Informal Patent Application, PTO-152
☒ Interview Summary, PTO-413
☒ Examiner's Amendment/Comment
☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
☒ Examiner's Statement of Reasons for Allowance

Art Unit: 1807

DETAILED ACTION

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jeffrey Inhen on May 19, 1997

The application has been amended as follows:

Art Unit: 1807

In claims 41-47, the words "~~comprises the alteration comprising~~" has been deleted and -- consists of-- has been inserted.

3. The following is an examiner's statement of reasons for allowance:

The claims are drawn to methods of detecting germline alterations in the BRCA1 gene by detecting alterations in BRCA1 nucleic acids or in the products expressed by these nucleic acids, such as by the use of epitope specific antibodies. In a further embodiment of the invention, the method is used to detect specific polymorphisms in the BRCA1 gene. Applicants are first to discover the sequence of the wild type BRCA1 gene and disclose and enable the methods of detection recited broadly herein (Applicant's declaration by Dr. Wolfert was considered persuasive with regards to method claims employing altered -epitope specific antibodies). The skill in the art in this technology is high and such antibodies have been routinely made for a number of years. It is further noted that workers in the field have generated antibodies to various domains of the BRCA1 protein subsequent to the filing of this application using the same methodology disclosed in the instant application. Detection of germline mutations in the BRCA1 gene provide an indication of increased susceptibility to breast and ovarian cancer.

Serial Number: 08488011

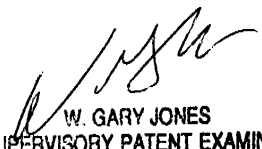
Page 4

Art Unit: 1807

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dianne Rees whose telephone number is (703) 308-6565.

Dianne Rees
5/19/97

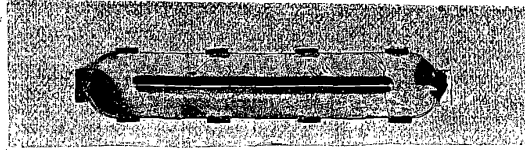

W. GARY JONES
SUPERVISORY PATENT EXAMINER
GROUP 1800
5/20/97

May 19, 1997

3525 U.S. PTO
09/04/96

03/20/98

435	6	Class	Subclass
ISSUE CLASSIFICATION			



PATENT NUMBER
6033857

U.S. UTILITY PATENT APPLICATION

O.I.P.E. SCANNED <i>SM</i> Q.A. <i>SW</i>	PATENT DATE MAR 07 1998
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SECTOR	CLASS 435	SUBCLASS 6	ART UNIT 1632	EXAMINER Hauda
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FILED WITH: ☐ DISK (CRF) ☐ FICHE
(Attached in pocket on right inside flap)

PREPARED AND APPROVED FOR ISSUE

ISSUING CLASSIFICATION							
ORIGINAL		CROSS REFERENCE(S)					
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
435	6	435	7.2	69.1	325	320.1	
INTERNATIONAL CLASSIFICATION		536	23.1	23.5			
C07H	21/00						
C12N	15/63						
C12N	15/79						
C12N	15/11						
C12N	15/09						

☐ Continued on Issue Slip Inside File Jacket

259-09 Formal Drawings (9 sheets) set 3-20-98

<input type="checkbox"/> TERMINAL DISCLAIMER	DRAWINGS			CLAIMS ALLOWED	
	Sheets Drwg. 9	Figs. Drwg. 11	Print Figs. NONE	Total Claims 8	Print Claim for O.G. 1
<input type="checkbox"/> a) The term of this patent subsequent to _____ (date) has been disclaimed.	_____ (Assistant Examiner)			NOTICE OF ALLOWANCE MAILED 10-1-99	
<input type="checkbox"/> b) The term of this patent shall not extend beyond the expiration date of U.S. Patent. No. _____	Karen M. Hauda 9/29/99 Karen M. Hauda _____ (Primary Examiner)			ISSUE FEE Amount Due 1005.00 Date Paid 12-27-99	
<input type="checkbox"/> c) The terminal _____ months of this patent have been disclaimed.	_____ (Legal Instruments Examiner)			ISSUE BATCH NUMBER C62	

WARNING:
The information disclosed herein may be restricted. Unauthorized disclosure may be prohibited by the United States Code Title 35, Sections 122, 181 and 368. Possession outside the U.S. Patent & Trademark Office is restricted to authorized employees and contractors only.

Form PTO-436A
(Rev. 10/97)

Formal Drawings (9 sheets) set

(LABEL AREA)

(FACE)

jc525 U.S. PTO

09/044946



03/20/98

PATENT APPLICATION



09044946

MAR 30 9 835

INITIALS

CONTENTS

	Date received (Incl. C. of M.) or Date Mailed		Date received (Incl. C. of M.) or Date Mailed
1. Application papers	4/16/98	42.	
2. Initial Re Re Insufficient		43.	
3. Response	6/10/98	44.	
4. Preamble	3-20-98	45.	
5. IDS	3-20-98	46.	
6. Status Request	6-11-99	47.	
7. CRF	7/2/99	48.	
8. 5th Th. Seg	9/29/99	49.	
9. CRF entered	9/30/99	50.	
10. Notice of Allow. w/Ex. Am. 10/1/99	10/1/99	51.	
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(FRONT)

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DI
09/044,946	03/20/98	800	1632	2318-18

APPLICANT

SEAN V. TAVTIGIAN, SALT LAKE CITY, UT; ALEXANDER KAMB, SALT LAKE CITY, UT; JACQUES SIMARD, QUEBEC, CANADA; FERGUS DOUCH, ST DAVIDS, PA; JOHANNA M. ROMMENS, TORONT ONTARIO, CANADA; BARBARA L. WEBER, MERTON, PA.

****CONTINUING DOMESTIC DATA*******

VERIFIED THIS APPLN IS A DIV OF 08/639,501 04/29/96 PAT 5,837,4
 WHICH IS A CIP OF 08/585,391 01/11/96 ABN
KMH WHICH IS A CIP OF 08/576,559 12/21/95 ABN
 WHICH IS A CIP OF 08/573,359 12/20/95 ABN
 WHICH IS A CIP OF 08/573,779 12/18/95 ABN

****371 (NAT'L STAGE) DATA*******

VERIFIED
KMH None

****FOREIGN APPLICATIONS*******

VERIFIED
KMH None


IF REQUIRED, FOREIGN FILING LICENSE GRANTED 04/07/98 ** SMALL ENTITY **

Foreign Priority claimed	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	IN CL
35 USC 119 (a-d) conditions met	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after Allowance	UT	9	13	
Verified and Acknowledged	<u>KMH</u> Examiner's Initials	Initials			

ADDRESS
 JEFFREY L IHNEN
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 WASHINGTON DC 20004

TITLE
 CHROMOSOME 13-LINKED BREAST CANCER SUSCEPTIBILITY GENE

FILING FEE RECEIVED	FEEES: Authority has been given in Paper	<input type="checkbox"/> All Fees
\$477	No. _____ to charge/credit DEPOSIT ACCOUNT	<input type="checkbox"/> 1.16 Fees (Filing)
	No. _____ for the following:	<input type="checkbox"/> 1.17 Fees (Processing Ext. of
		<input type="checkbox"/> 1.18 Fees (Issue)
		<input type="checkbox"/> Other _____

Notice of Allowability	Application No. 09/044,946	Applicant(s) Tavtigian et al.	
	Examiner Karen M. Hauda	Group Art Unit 1632	

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 and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to March 20, 1998

☒ The allowed claim(s) is/are 35, 49, 51, 52, 55, and 57-59

☒ The drawings filed on Mar 20, 1998 are acceptable.

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

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.
☐ received in Application No. (Series Code/Serial Number) _____
☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE **THREE MONTHS** FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☐ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.
☐ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. _____.
☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.
☐ including changes required by the attached Examiner's Amendment/Comment.

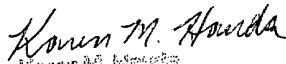
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☐ Notice of References Cited, PTO-892
☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5
☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
☐ Notice of Informal Patent Application, PTO-152
☐ Interview Summary, PTO-413
☒ Examiner's Amendment/Comment
☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
☒ Examiner's Statement of Reasons for Allowance


 Karen M. Hauda
 Patent Examiner

Application/Control Number: 09/044,946

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EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jeffrey L. Ihnen on September 28, 1999.

The application has been amended as follows:

Claim 49 has been rewritten as follows:

81
Claim ~~49~~². A method for diagnosing a predisposition for breast cancer in a human subject which comprises comparing the germline sequence of the BRCA2 gene or the sequence of its mRNA in a tissue sample from said subject with the germline sequence of the wild-type BRCA2 gene or the sequence of its mRNA, wherein an alteration in the germline sequence of the BRCA2 gene or the sequence of its mRNA of the subject indicates a predisposition to said cancer.

Claim 50 has been canceled.

In claim 51, line 1, the term ~~"the"~~ has been replaced with the term "a".

In claim 51, line 1, the term ~~"regions"~~ has been replaced with the term "region".

In claim 52, line 1, the phrase ~~"determined by an assay"~~ has been inserted after the word "is".

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In claim 52, line 4, the term “sample” has ~~been~~ inserted after the term “tissue”.

In claim 52, line 5, the phrase “of the tissue~~sample~~” has been inserted after the term “DNA”.

In claim 52, line 5, the phrase “tissue” has ~~been~~ inserted after the term “said”.

In claim 52, line 7, the phrase “from said ~~tissue~~ sample using primers” has been inserted after the term “gene”.

In claim 52, line 8, the term “tissue” has ~~been~~ inserted before the term “sample”.

In claim 52, line 9, the term “molecules” has ~~been~~ deleted.

In claim 52, line 9, the phrase “BRCA2 gene~~genomic DNA or~~” has been replaced with the phrase “a BRCA2 gene or a”..

In claim 52, line 10, the term “tissue” has ~~been~~ inserted before the term “sample”.

In claim 52, line 11, the term “DNA” has been replaced with the term “sequence”.

In claim 52, line 12, the term “tissue” has been inserted before the term “sample”.

In claim 52, line 14, the term “sample” has been inserted after the term “tissue”.

In claim 52, line 16, the phrase “in said tissue ~~sample~~” has been inserted after the term “mutation”.

In claim 52, line 17, the phrase “in said ~~tissue~~ sample” has been inserted after both occurrences of the term “mutation”.

In claim 52, line 17, the “.” after the first ~~occurrence~~ of the term mutation has been replaced with a “,”.

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In claim 52, line 18, the ~~phrase~~ "of said tissue sample" has been inserted after the first occurrence of the term "gene".

In claim 52, line 18, ~~from~~ the comma after the second occurrence of the term "gene" to the end of the claim excluding the period has been deleted.

Claims 53-54 have been canceled.

Claim 55 has been rewritten as follows:

B2
Claim ~~55~~⁵. A method for detecting a mutation in a neoplastic lesion at the BRCA2 gene in a human subject which comprises comparing the sequence of the BRCA2 gene or the sequence of its mRNA in a tissue sample from a lesion of said subject with the sequence of the wild-type BRCA2 gene or the sequence of its mRNA, wherein an alteration in the sequence of the BRCA2 gene or the sequence of its mRNA of the subject indicates a mutation at the BRCA2 gene of the neoplastic lesion.

Claim 56 has been canceled.

In claim 57, line 1, the term ~~"a"~~ has been inserted before the term "regulatory".

In claim 58, line 1, the phrase ~~"determined by an assay"~~ has been inserted after the word "is".

In claim 58, line 4, the term ~~"sample"~~ has been inserted after the term "tissue".

In claim 58, line 4, the phrase ~~"of the tissue sample"~~ has been inserted after the term "DNA".

In claim 58, line 5, the phrase ~~"tissue"~~ has been inserted after the term "said".

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In claim 58, line 7, the phrase “from said tissue sample using primers” has been inserted after the term “gene”.

In claim 58, line 8, the term “tissue” has been inserted before the term “sample”.

In claim 58, line 9, the term “molecules” has been deleted.

In claim 58, line 9, the phrase “BRCA2 gene genomic DNA or” has been replaced with the phrase “a BRCA2 gene or a”.

In claim 58, line 10, the term “tissue” has been inserted before the term “sample”.

In claim 58, line 11, the term “DNA” has been replaced with the term “sequence”.

In claim 58, line 12, the term “tissue” has been inserted before the term “sample”.

In claim 58, line 14, the term “sample” has been inserted after the term “tissue”.

In claim 58, line 16, the phrase “in said tissue sample” has been inserted after both occurrences of the term “mutation”.

In claim 58, line 17, the “.” after the second occurrence of the term mutation has been replaced with a “,”.

In claim 58, line 17, the phrase “in said tissue sample” has been inserted after the term “mutation”.

In claim 58, line 17, the phrase “of said tissue sample” has been inserted after the term “gene”.

In claim 58, line 18, from the comma after the term “gene” to the end of the claim excluding the period has been deleted.

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Claim 59 has been rewritten as follows:

⁸
B3 Claim 59. A method for confirming the lack of a BRCA2 mutation in a neoplastic lesion from a human subject which comprises comparing the sequence of the BRCA2 gene or the sequence of its mRNA in a tissue sample from a lesion of said subject with the sequence of the wild-type BRCA2 gene or the sequence of its mRNA, wherein the presence of the wild-type sequence in the tissue sample indicates the lack of a mutation at the BRCA2 gene.

Claim 60 has been ~~cancelled~~.

The following is an examiner's statement of reasons for allowance:

The claimed invention is allowable over the prior art of record because the prior art of record does not teach or fairly suggest a method of screening for a mutation in a sample by comparing the DNA gene sequence of BRCA2 from the sample with that of the wild-type BRCA2 gene sequence.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen M. Hauda whose telephone number is (703) 305-6608.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn, may be reached at (703) 308-4743.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-2801.

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The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1632.

Papers related to this application may be submitted to Group 160 by facsimile transmission. Papers should be faxed to Group 160 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center number is or (703) 305-3014 or (703) 308-4242.

Karen M. Hauola
Karen M. Hauola
Patent Examiner