

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT4070838

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| SUBMISSION TYPE: | NEW ASSIGNMENT | |
| NATURE OF CONVEYANCE: | PATENT SECURITY AGREEMENT | |
| CONVEYING PARTY DATA | | |
| Name | | Execution Date |
| FOUNDATION MEDICINE, INC. | | 09/27/2016 |
| RECEIVING PARTY DATA | | |
| Name: | ROCHE FINANCE LTD | |
| Street Address: | C/O ROCHE FINANZ AG, GRENZACHERSTRASSE 122 | |
| City: | BASEL | |
| State/Country: | SWITZERLAND | |
| Postal Code: | 4070 | |
| PROPERTY NUMBERS Total: 38 | | |
| Property Type | Number | |
| Patent Number: | 9340830 | |
| Patent Number: | 9297011 | |
| Patent Number: | 8673972 | |
| Patent Number: | 9410954 | |
| Patent Number: | 7399845 | |
| Patent Number: | 7741457 | |
| Patent Number: | 8022193 | |
| Patent Number: | 7569686 | |
| Application Number: | 15093009 | |
| Application Number: | 15045716 | |
| Application Number: | 14753397 | |
| Application Number: | 14257607 | |
| Application Number: | 15018640 | |
| Application Number: | 14440569 | |
| Application Number: | 14146742 | |
| Application Number: | 14761518 | |
| Application Number: | 61939936 | |
| Application Number: | 14274525 | |
| Application Number: | 14473508 | |
| Application Number: | 14333368 | |

PATENT

| Property Type | Number |
|---------------------|--------------|
| Application Number: | 14146743 |
| Application Number: | 14463068 |
| Application Number: | 14463073 |
| Application Number: | 14972715 |
| Application Number: | 62301510 |
| Application Number: | 62301519 |
| Application Number: | 62301534 |
| Application Number: | 15200088 |
| Application Number: | 13935451 |
| Application Number: | 14770776 |
| Application Number: | 62301595 |
| Application Number: | 62360294 |
| PCT Number: | US2015064044 |
| PCT Number: | US2014010125 |
| PCT Number: | US2015045859 |
| PCT Number: | US2015066325 |
| PCT Number: | US2013053516 |
| PCT Number: | US2013049402 |

CORRESPONDENCE DATA

Fax Number: (800)494-7512

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

Phone: 202-370-4790

Email: IPTEAM@NATIONALCORP.COM

Correspondent Name: PAUL TATE

Address Line 1: 1025 VERMONT AVENUE, NW #1130

Address Line 2: NATIONAL CORPORATE RESEARCH, LTD.

Address Line 4: WASHINGTON, D.C. 20005

| | |
|--------------------------------|-----------------|
| ATTORNEY DOCKET NUMBER: | F165645 |
| NAME OF SUBMITTER: | SONYA JACKMAN |
| SIGNATURE: | /SONYA JACKMAN/ |
| DATE SIGNED: | 09/27/2016 |

Total Attachments: 7

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PATENT SECURITY AGREEMENT

(Patents, Patent Applications and Patent Licenses)

WHEREAS, Foundation Medicine, Inc. a Delaware corporation (herein referred to as the “**Grantor**”), owns, or in the case of licenses is a party to, the Patent Collateral (as defined below);

WHEREAS, Foundation Medicine, Inc. (the “**Borrower**”) and Roche Finance Ltd (the “**Lender**”) are parties to a Credit Facility Agreement dated August 2, 2016 (as amended from time to time, the “**Credit Agreement**”); and

WHEREAS, pursuant to (i) a Guarantee and Security Agreement dated as of September 27, 2016 (as amended and/or supplemented from time to time, the “**Security Agreement**”) among the Borrower, the Guarantors from time to time party thereto and the Lender (in such capacity, together with its successors in such capacity, the “**Grantee**”), and (ii) certain other Security Documents (including this Patent Security Agreement), the Grantor has secured certain of its obligations (the “**Secured Obligations**”) by granting to the Grantee a continuing security interest in personal property of the Grantor, including all right, title and interest of the Grantor in, to and under the Patent Collateral (as defined below);

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Grantor grants to the Grantee, to secure the Secured Obligations, a continuing security interest in all of the Grantor’s right, title and interest in, to and under the following (all of the following items or types of property being herein collectively referred to as the “**Patent Collateral**”), whether now owned or existing or hereafter acquired or arising:

- (i) each Patent (as defined in the Security Agreement) owned by the Grantor, including, without limitation, each Patent referred to in Schedule 1 hereto;
- (ii) each Patent License (as defined in the Security Agreement) to which the Grantor is a party, including, without limitation, each Patent License identified in Schedule 1 hereto; and
- (iii) all proceeds of and revenues from the foregoing, including, without limitation, all proceeds of and revenues from any claim by the Grantor against third parties for past, present or future infringement of any Patent owned by the Grantor (including, without limitation, any Patent identified in Schedule 1 hereto) and all rights and benefits of the Grantor under any Patent License (including, without limitation, any Patent License identified in Schedule 1 hereto).

The Grantor irrevocably constitutes and appoints the Grantee and any officer or agent thereof, with full power of substitution, as its true and lawful attorney-in-fact with full power and authority in the name of the Grantor or in the Grantee’s name, from time to time, in the Grantee’s discretion, so long as any Event of Default shall have occurred

and be continuing, to take with respect to the Patent Collateral any and all appropriate action which the Grantor might take with respect to the Patent Collateral and to execute any and all documents and instruments which may be necessary or desirable to carry out the terms of this Patent Security Agreement and to accomplish the purposes hereof.

Except to the extent expressly permitted in the Security Agreement or the Credit Agreement, the Grantor agrees not to sell, license, exchange, assign or otherwise transfer or dispose of, or grant any rights with respect to, or mortgage or otherwise encumber, any of the Patent Collateral.

The foregoing security interest is granted in conjunction with the security interests granted by the Grantor to the Grantee pursuant to the Security Agreement. The Grantor acknowledges and affirms that the rights and remedies of the Grantee with respect to the security interest in the Patent Collateral granted hereby are more fully set forth in the Security Agreement, the terms and provisions of which are incorporated by reference herein as if fully set forth herein.

IN WITNESS WHEREOF, the Grantor has caused this Patent Security Agreement to be duly executed by its officer thereunto duly authorized as of the 27th day of September, 2016.

FOUNDATION MEDICINE, INC.

By: 

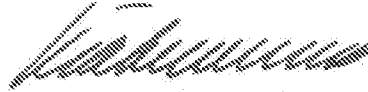
Name: Michael Pellino, M.D.


Title: Chief Executive Officer

[Signature Page to Patent Security Agreement]

Acknowledged:

ROCHE FINANCE LTD

By: 
Name: Beat Kraehenmann
Title: Authorized Signatory

By: 
Name: Andreas Klierzinger
Title: Authorized Signatory

[Signature Page to Patent Security Agreement]

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PATENT
REEL: 040165 FRAME: 0621

FOUNDATION MEDICINE, INC.

PATENTS AND DESIGN PATENTS

| Patent No | Issued | Title |
|------------------|----------------|--|
| 9,340,830 | May 17, 2016 | Optimization of Multigene Analysis of Tumor Samples |
| 9,297,011 | March 29, 2016 | Novel KIF5B-Ret Fusion Molecules and Uses Thereof |
| 8,673,972 | March 18, 2014 | Human Papilloma Virus as Predictor of Cancer Prognosis |
| 9,410,954 | August 9, 2016 | Human Papilloma Virus as Predictor of Cancer Prognosis |

LICENSED PATENTS

| Patent No | Issued | Title |
|------------------|--------------------|--|
| 7,399,845 | July 15, 2008 | 6-Modified Bicyclic Nucleic Acid Analogs |
| 7,741,457 | June 22, 2010 | 6-Modified Bicyclic Nucleic Acid Analogs |
| 8,022,193 | September 20, 2011 | 6-Modified Bicyclic Nucleic Acid Analogs |
| 7,569,686 | August 4, 2009 | Compounds and Methods for Synthesis of Bicyclic Nucleic Acid Analogs |

PATENT APPLICATIONS

| Appl. No. | Filing Date | Title |
|------------------|--------------------|---|
| 15/093,009 | April 7, 2016 | Optimization of Multigene Analysis of Tumor Samples |
| 15/045,716 | February 17, 2016 | Novel KIF5B-Ret Fusion Molecules and Uses Thereof |
| 14/753,397 | June 29, 2015 | Novel Estrogen Receptor Mutations and Uses Thereof |

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|------------|-------------------|---|
| 14/257607 | April 21, 2014 | Novel ALK and NTRK1 Fusion Molecules and Uses Thereof |
| 15/018,640 | February 8, 2016 | Novel Estrogen Receptor Mutations and Uses Thereof |
| 14/440,569 | November 5, 2103 | Novel Fusion Molecules and Uses Thereof |
| 14/146,742 | January 3, 2014 | System and Method for Outcome Tracking and Analysis |
| 14/761,518 | January 17, 2014 | Methods of Treating Cholangiocarcinoma |
| 61/939,936 | February 14, 2014 | Analysis of Genetic Variants |
| 14/274,525 | May 9, 2014 | Analysis of Genetic Variants |
| 14/473,508 | August 29, 2014 | Novel NTRK1 Fusion Molecules and Uses Thereof |
| 14/333,368 | July 16, 2014 | Methods of Treating Urothelial Carinoma |
| 14/146,743 | January 3, 2014 | For Managing Genomic Testing Results |
| 14/463,068 | August 19, 2014 | System and Method For Managing Genomic Information |
| 14/463,073 | August 19, 2014 | System and Method For Managing Genomic Information |
| 14/972,715 | December 17, 2015 | Computer-Implemented System and Method for Identifying Similar Patients |
| 62/301,510 | February 29, 2016 | Methods of Treating Cancer |
| 62/301,519 | February 29, 2016 | Methods and Systems for Evaluating Tumor Mutational Burden |
| 62/301,534 | February 29, 2016 | Methods and Systems for Evaluating Tumor Mutational Burden |
| 15/200,088 | July 1, 2016 | Human Papilloma Virus as Predictor of Cancer Prognosis |
| 13/935,451 | July 3, 2013 | Tm-Enhanced Blocking Oligonucleotides and Baits For Improved Target Enrichment and Reduced Off-Target Selection |
| 14/770,776 | February 22, 2014 | Novel Fusion Molecules and Uses Thereof |
| 62/301,595 | February 29, 2016 | Therapeutic and Diagnostic Methods for Cancer |
| 62/360294 | July 8, 2016 | Methods for Diagnosing and Treating Cancer |

PUBLISHED PENDING PATENTS

| Appl. No. | Filing Date | Title |
|--------------------|--------------------|--|
| PCT/US/2015/064044 | December 4, 2015 | Multigene Analysis of Tumor Samples |
| PCT/US2014/010125 | January 3, 2014 | System and Method For Managing Genomic Testing Results |
| PCT/US2015/045859 | August 19,2015 | System and Method For Managing Genomic Information |

| | | |
|-----------------------|-------------------|--|
| PCT/US2015/ 066325 | December 17, 2015 | Computer-Implemented System and Method for Identifying Similar Patients |
| PCT/US2013/ 053516 | August 2, 2013 | Human Papilloma Virus as a Predictor of Cancer Prognosis |
| PCT/US2013/ 049402 | July 3, 2013 | Methods and Compositions For Reducing Off Target Selection |