

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT6205688

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
KANDAVEL SHANMUGAM	07/01/2020
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	VENTANA MEDICAL SYSTEMS, INC.
<b>Street Address:</b>	1910 E. INNOVATION PARK DRIVE
<b>City:</b>	TUCSON
<b>State/Country:</b>	ARIZONA
<b>Postal Code:</b>	85755
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15606122
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(925)225-1128
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	925-251-6812
<b>Email:</b>	erica.layman@roche.com
<b>Correspondent Name:</b>	ERICA LAYMAN
<b>Address Line 1:</b>	4300 HACIENDA DRIVE
<b>Address Line 2:</b>	PATENTS
<b>Address Line 4:</b>	PLEASANTON, CALIFORNIA 94588
<b>ATTORNEY DOCKET NUMBER:</b>	32459-US1
<b>NAME OF SUBMITTER:</b>	DAVID M. ZAMORA
<b>SIGNATURE:</b>	/David M. Zamora/
<b>DATE SIGNED:</b>	07/17/2020
<b>Total Attachments: 11</b>	
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source=32459-US1 Assign\_rev Inv to VMSI 15606122 complete#page11.tif

## ASSIGNMENT

We,  
**Michael Barnes** of Oro Valley, Arizona, U.S.A.,  
**David Chafin** of Tucson, Arizona, U.S.A.,  
**Karl Garsha** of Sahuarita, Arizona, U.S.A.,  
**Thomas M. Grogan** of Tucson, Arizona, U.S.A.,  
**Esteban Roberts** of Tucson, Arizona, U.S.A.,  
**Benjamin Stevens** of Oro Valley, Arizona, U.S.A.,  
**Franklin Ventura** of Tucson, Arizona, U.S.A.,  
**Christophe Chefhotel** of Sunnyvale, California, U.S.A., and  
**Kandavel Shanmugam** of Chandler, Arizona, U.S.A., while employed by Ventana Medical Systems, Inc., of Tucson, Arizona, U.S.A. (“Assignors”), together with

**Brian J. Druker** of Portland, Oregon, U.S.A., while employed by Howard Hughes Medical Institute, of Chevy Chase, Maryland, U.S.A.,  
**Joe Gray** of Lake Oswego, Oregon, U.S.A.,  
**Damien Ramunno-Johnson** of Vancouver, Washington, U.S.A.,  
**Tania Vu** of Portland, Oregon, U.S.A.,  
**Thomas Jacob** of Beaverton, Oregon, U.S.A.,  
while employed by Oregon Health & Science University, of Portland, Oregon, U.S.A.,  
(hereinafter, “Co-Inventors”)

have invented one or more inventions (collectively, the “Invention”) as described in U.S. Patent Application No. 15/606,122, entitled Methods, Systems, and Apparatuses for Quantitative Analysis of Heterogeneous Biomarker Distribution, filed on May 26, 2017, which application is referred to herein as the “Patent Application,” which is a continuation of International Application PCT/EP2015/078352 filed on December 03, 2015, which claims priority to Provisional Patent Application No. 62/086,840, filed on December 03, 2014, referred to herein as the “Provisional Application.”

The Invention was made as a result of our activities at or on behalf of Ventana Medical Systems, Inc. or as a result of our utilization of information, facilities or other resources of Ventana Medical Systems, Inc. The conditions under which the Invention was made are such as to entitle Ventana Medical Systems, Inc. to each of our entire respective right, title, and interest in the Invention and any corresponding patent applications and/or patents in the United States and its territories and dependencies, and all other countries and jurisdictions of the world.

In consideration of our obligations and other valuable consideration, we each have sold, assigned and transferred or hereby sell, assign, and transfer to Ventana Medical Systems, Inc., its successors and assigns (collectively, “Assignee”), each of our respective full and exclusive right, title, and interest in the Invention, the Patent application, and any corresponding patent rights throughout the United States and its territories and dependencies, and all other countries and jurisdictions of the world. The conveyance of patent rights includes, without limitation, full and exclusive right, title, and interest in all non-provisional patent applications claiming all or part of

the Invention and/or claiming the benefit of a filing date of the Provisional Application, and any patents that may issue from such non-provisional patent applications in the United States and/or all other countries and jurisdictions throughout the world, and any divisional, continuation, continuation-in-part, substitution, conversion, re-examination, reissue, renewal, prolongation or extension thereof; and the right to claim priority from the Provisional Application as provided for by United States law, the Patent Cooperation Treaty, the European Patent Convention, the Paris Convention, or other applicable law, including but not limited to the Patent Application.

We each authorize and request the issuance of any patents arising from the Patent Application or any non-provisional patent applications claiming all or part of the Invention and/or claiming the benefit of a filing date of the Provisional Application to the Assignee to be held as fully and entirely as the same would have been held by us had this assignment not been made.

We each warrant that there are no outstanding assignments, grants, liens, encumbrances, or agreements either written, oral, or implied that will impair, diminish, limit, or abridge the interest herein conveyed.

We each also agree upon reasonable request to communicate with the Assignee, its representatives or agents, any facts known to us respecting all or part of the Invention, and testify in any legal proceedings, sign all lawful papers, execute all non-provisional, divisional, continuation, continuation-in-part, re-examination, and reissue applications, make all rightful oaths, provide all requested documents, and do everything reasonably possible to aid the Assignee, its representatives or agents, to obtain and enforce proper patent protection for all or part of the Invention in the United States or any other country of the world. These provisions are binding upon each of our heirs, legal representatives, administrators and assigns.

This Assignment may be executed in one or more counterparts, each of which when executed and delivered, by facsimile or other electronic transmission, by mail delivery, or by other form of delivery, will be an original and all of which will constitute but one and the same Assignment.

IN WITNESS WHEREOF, this Assignment is executed as of the date(s) indicated on the following counterpart signature page(s).

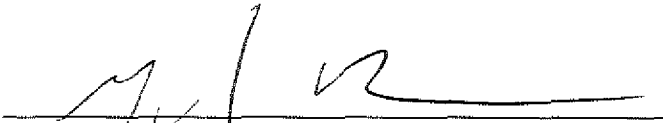
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**COUNTERPART SIGNATURE PAGE**

<b>Case No.</b>	<b>Country</b>	<b>Filing Date</b>	<b>Serial No.</b>
32459-US1	United States	26 May 2017	15/606,122
32459-WO	Patent Cooperation Treaty	03 Dec 2015	PCT/EP2015/078532

ASSIGNOR:

Dated: 26-Aug-2019


  
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Michael Barnes

**COUNTERPART SIGNATURE PAGE**

<b>Case No.</b>	<b>Country</b>	<b>Filing Date</b>	<b>Serial No.</b>
32459-US1	United States	26 May 2017	15/606,122
32459-WO	Patent Cooperation Treaty	03 Dec 2015	PCT/EP2015/078532

ASSIGNOR:

Dated: 18-mar-2020


  
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David Chafin

**COUNTERPART SIGNATURE PAGE**

<b>Case No.</b>	<b>Country</b>	<b>Filing Date</b>	<b>Serial No.</b>
32459-US1	United States	26 May 2017	15/606,122
32459-WO	Patent Cooperation Treaty	03 Dec 2015	PCT/EP2015/078532

ASSIGNOR:

Dated: 16 AUGUST 2019

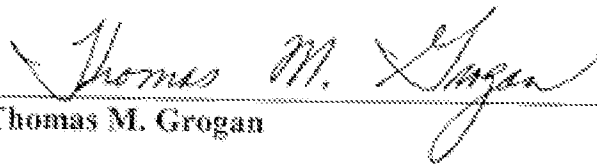
  
\_\_\_\_\_  
Karl Garsha

COUNTERPART SIGNATURE PAGE

Case No.	Country	Filing Date	Serial No.
32459-US1	United States	26 May 2017	15/606,122
32459-WO	Patent Cooperation Treaty	03 Dec 2015	PCT/EP2015/078532

ASSIGNOR:

Dated: 31 March 2020

  
\_\_\_\_\_  
Thomas M. Grogan



**COUNTERPART SIGNATURE PAGE**

<b>Case No.</b>	<b>Country</b>	<b>Filing Date</b>	<b>Serial No.</b>
32459-US1	United States	26 May 2017	15/606,122
32459-WO	Patent Cooperation Treaty	03 Dec 2015	PCT/EP2015/078532

ASSIGNOR.

Dated: 14-AUG-2019




**Esteban Roberts**

**COUNTERPART SIGNATURE PAGE**

<b>Case No.</b>	<b>Country</b>	<b>Filing Date</b>	<b>Serial No.</b>
32459-US1	United States	26 May 2017	15/606,122
32459-WO	Patent Cooperation Treaty	03 Dec 2015	PCT/EP2015/078532

ASSIGNOR:

Dated: Aug. 14, 2019

  
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**Benjamin Stevens**

**COUNTERPART SIGNATURE PAGE**

<b>Case No.</b>	<b>Country</b>	<b>Filing Date</b>	<b>Serial No.</b>
32459-US1	United States	26 May 2017	15/606,122
32459-WO	Patent Cooperation Treaty	03 Dec 2015	PCT/EP2015/078532

ASSIGNOR:

Dated: 15-AUG-2019

A handwritten signature in black ink, appearing to read 'FRANK', is written over a horizontal line. The signature is stylized and somewhat illegible.

**Franklin Ventura**

**COUNTERPART SIGNATURE PAGE**

<b>Case No.</b>	<b>Country</b>	<b>Filing Date</b>	<b>Serial No.</b>
32459-US1	United States	26 May 2017	15/606,122
32459-WO	Patent Cooperation Treaty	03 Dec 2015	PCT/EP2015/078532

ASSIGNOR:

Dated: April 6, 2020



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**Christophe Chefd'hotel**

COUNTERPART SIGNATURE PAGE

Case No.	Country	Filing Date	Serial No.
32459-US1	United States	26 May 2017	15/606,122
32459-WO	Patent Cooperation Treaty	03 Dec 2015	PCT/EP2015/078532

ASSIGNOR:

Dated: \_\_\_\_\_

*July 1<sup>st</sup> 2020*

*S. Kandavel*

\_\_\_\_\_  
Kandavel Shanmugam