# PATENT ASSIGNMENT COVER SHEET

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| SUBMISSION TYPE:      | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT     |

### **CONVEYING PARTY DATA**

| Name  | Execution Date |
|---|----------------|
| BOARD OF TRUSTEES OF THE UNIVERSITY OF ARKANSAS | 08/11/2017     |

## **RECEIVING PARTY DATA**

| Name:           | BIOVENTURES, LLC          |
|-----------------|---------------------------|
| Street Address: | 4301 W. MARKHAM ST., #831 |
| City:           | LITTLE ROCK               |
| State/Country:  | ARKANSAS                  |
| Postal Code:    | 72205-7199                |

## **PROPERTY NUMBERS Total: 16**

| Property Type       | Number   |
|---------------------|----------|
| Patent Number:      | 7094886  |
| Patent Number:      | 7696150  |
| Patent Number:      | 8501702  |
| Patent Number:      | 7668659  |
| Patent Number:      | 7894992  |
| Patent Number:      | 7308364  |
| Application Number: | 12001110 |
| Patent Number:      | 7983850  |
| Patent Number:      | 7935679  |
| Patent Number:      | 8954283  |
| Patent Number:      | 9574238  |
| Patent Number:      | 9714451  |
| Application Number: | 15436230 |
| Application Number: | 14892555 |
| Patent Number:      | 8843320  |
| Patent Number:      | 9650677  |

### **CORRESPONDENCE DATA**

**Fax Number:** (202)672-5399

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.

504501948 REEL: 043283 FRAME: 0468

**Phone:** (202) 672-5300

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Address Line 1: FOLEY & LARDNER LLP

Address Line 2: 3000 K STREET N.W., SUITE 600

Address Line 4: WASHINGTON, D.C. 20007

| ATTORNEY DOCKET NUMBER: | 034827-0100 (16) |
|-------------------------|------------------|
| NAME OF SUBMITTER:      | KRISTEL SCHORR   |
| SIGNATURE:              | /Kristel Schorr/ |
| DATE SIGNED:            | 08/14/2017       |

## **Total Attachments: 9**

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> PATENT REEL: 043283 FRAME: 0469

#### PATENT ASSIGNMENT

WHEREAS the <u>Board of Trustees of the University of Arkansas</u>, a University, with offices at 2404 North University Avenue, Little Rock, Arkansas 72207 (hereinafter "Assignor") is the assignee of the invention rights in the United States of America and its territories and possessions thereof and all foreign countries to the patent applications on the attached Schedule A;

WHEREAS <u>BioVentures</u>, <u>LLC</u>, an Arkansas limited liability company, with offices at 4301 W. Markham St., #831, Little Rock, Arkansas 72205-7199 (hereinafter "Assignee") is desirous of acquiring all right, title and interest for the United States of America, its territories and possessions thereof and all foreign countries in and to the invention(s) relating thereto, identified on the attached Schedule A,

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by Assignor, Assignor hereby assigns to Assignee the entire and exclusive right, title and interest in and to said inventions for the United States of America, and in and to said worldwide patent applications listed on the attached Schedule A, including any and all divisional, continuation, continuation-in-part, reissues or extensions thereof, to be held and enjoyed by Assignee for its own use as fully and entirely as the same would have been held and enjoyed by Assignor had this assignment not been made; the Commissioner of Patents and Trademarks of the United States of America is hereby authorized to transfer the portion of the title indicated to said application to said Assignee in accordance herewith; this assignment being under covenant, not only that full power to make the same is had by the Assignor, but also that such assigned rights are not encumbered by any grant, license, or other right theretofore given; Assignor hereby undertakes to execute and deliver to Assignee upon request all lawful documents which may be requested by Assignee, and to furnish Assignee with all facts relating to said invention as may be requested.

The undersigned hereby grant the firm of FOLEY & LARDNER LLP, the power to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

Page 1 of 9

| Assignor: Board of Trustees of the Universit        | y of Arkansas  |
|---|--|
| Date: 8-11-17                                       | Name: Sephanie Gardner   |
|   | Title: Iterim Chanceller   |
| STATE OF MUSAS                                      | EDGMENT  |
| COUNTY OF PMUSCO ) SS.                              |  |
| On this II day of AUGUST, personally appeared Steph | 2017, before mc, a Notary Public,  |
| me to be the person described, in and who exe       | ecuted, the foregoing assignment and   |
| acknowledged that he/she executed said instru       | ument as his/her free act and deed.  |
| In Testimony Whereof, I have hereun                 | to set my hand and affixed my official seal the  |
| day and year first above written.                   |  |
| Notary Public                                       |  |
| My Commission Expires:                              | MAR L AUSTINIAN LA NOTO PORTO  |
| 6-7-26 [SEAL]                                       | NOTARL AND NOTARL STATE OF THE PROPERTY OF THE |
|   | COUNTY - ARTHURN   |

| Assignee: BioVentures, LLC  Date: AUGUST 11, 2017                    | By: Name: Name: Title:   | ncy M. Gray<br>voident     |
|--|--|----------------------------|
| STATE OF ACCOUNTS A  | CKNOWLEDGMENT  |                            |
| COUNTY OF PULLOPI  | ) SS.<br>)   |                            |
| personally appeared  |  | to                         |
| me to be the person described, in a acknowledged that he/she execute |  | <del></del>                |
| In Testimony Whereof, I h  | nave hereunto set my hand and aff  | fixed my official seal the |
| day and year first above written.                                    |  |                            |
| Notary Public Cil  |  |                            |
| My Commission Expires:  4/5/2020 [SE                                 | ALISON M. GILL MY COMMISSION # 12376156 EXPIRES: April 15, 2020 Pulaski County |                            |

# SCHEDULE A

| Country | Application No. | Application | Patent No. | Grant Date | Title   |
|---------|-----------------|-------------|------------|------------|---|
|         |                 | <u>Date</u> |            |            |   |
| U.S.    | 09/778971       | 2/2/2001    | 7094886    | 8/22/2006  | EVI27 GENE<br>SEQUENCE AND<br>PROTEIN ENCODED<br>THEREBY  |
| U.S.    | 11/128403       | 5/12/2005   | 7696150    | 4/13/2010  | MODULATION OF THE ACTIVITY OF AN INTERLEUKIN 17 RECEPTOR- RELATED PROTEIN, EVI27, AND USES THEREOF                              |
| U.S.    | 11/999301       | 12/4/2007   | 8501702    | 8/6/2013   | OVEREXPRESSION OF<br>WNT LIGANDS AND<br>TREATMENT OF<br>LYTIC BONE<br>DISEASES  |
| U.S.    | 10/289746       | 11/7/2002   | 7668659    | 2/23/2010  | DIAGNOSIS AND<br>CLASSIFICATION OF<br>MULTIPLE MYELOMA  |
| U.S.    | 10/409004       | 4/8/2003    | 7894992    | 2/22/2011  | DIAGNOSIS AND<br>CLASSIFICATION OF<br>MULTIPLE MYELOMA  |
| U.S.    | 10/454263       | 6/4/2003    | 7308364    | 12/11/2007 | DIAGNOSIS OF<br>MULTIPLE MYELOMA<br>BASED ON GENE<br>EXPRESSION<br>PROFILING  |
| U.S.    | 12/001110       | 12/10/2007  |            |            | Diagnosis, prognosis and identification of potential therapeutic targets of multiple myeloma based on gene expression profiling |
| U.S.    | 12/012302       | 2/1/2008    | 7983850    | 7/19/2011  | DIAGNOSIS, PROGNOSIS, IDENTIFICATION, AND CLASSIFICATION OF MULTIPLE MYELOMA BASED ON GENE EXPRESSION PROFILING                 |
| U.S.    | 11/110209       | 4/20/2005   | 7935679    | 5/3/2011   | A GENE EXPRESSION PROFILING BASED IDENTIFICATION OF CKSIB AS A POTENTIAL THERAPEUTIC TARGET IN MULTIPLE MYELOMA                 |

| U.S.   | 12/587383          | 10/6/2009 | 8954283      | 2/10/2015 | DIAGNOSIS,        |
|--------|--------------------|-----------|--------------|-----------|-------------------|
| 0.3.   | 12/30/303          | 10/0/2009 | 0734403      | 2/10/2013 | PROGNOSIS AND     |
|        |                    |           |              |           | 1                 |
|        |                    |           |              |           | IDENTIFICATION OF |
|        |                    |           |              |           | POTENTIAL         |
|        |                    |           |              |           | THERAPEUTIC       |
|        |                    |           |              |           | TARGETS OF        |
|        |                    |           |              |           | MULTIPLE MYELOMA  |
|        |                    |           |              |           | BASED ON GENE     |
|        |                    |           |              |           | EXPRESSION        |
|        |                    | ļ         |              |           | PROFILING         |
| U.S.   | 13/900393          | 5/22/2013 | 9574238      | 2/21/2017 | DIAGNOSIS,        |
|        |                    |           |              |           | PROGNOSIS AND     |
|        |                    |           |              |           | IDENTIFICATION OF |
|        |                    |           |              |           | POTENTIAL         |
|        |                    |           |              |           | THERAPEUTIC       |
|        |                    |           |              |           | TARGETS OF        |
|        |                    |           |              |           | MULTIPLE MYELOMA  |
|        |                    |           |              |           |                   |
|        |                    |           |              |           | BASED ON GENE     |
|        |                    |           |              |           | EXPRESSION        |
|        |                    |           |              |           | PROFILING         |
| U.S.   | 14/039728          | 9/27/2013 | 9714451      | 7/25/2017 | DIAGNOSIS,        |
|        |                    |           |              |           | PROGNOSIS AND     |
|        |                    |           |              |           | IDENTIFICATION OF |
|        |                    |           |              |           | POTENTIAL         |
|        | 1                  | ]         |              |           | THERAPEUTIC       |
|        |                    |           |              |           | TARGETS OF        |
|        |                    |           |              |           | MULTIPLE MYELOMA  |
|        |                    |           |              |           | BASED ON GENE     |
|        |                    |           |              |           | EXPRESSION        |
|        |                    |           |              |           | PROFILING         |
| U.S.   | 15/436230          | 2/17/2017 | <del> </del> |           | DIAGNOSIS,        |
| 0.5.   | 15/430230          | 2/1//2017 |              |           | PROGNOSIS AND     |
|        |                    |           |              |           | IDENTIFICATION OF |
|        |                    |           |              |           | POTENTIAL         |
|        |                    |           |              |           |                   |
|        |                    |           |              |           | THERAPEUTIC       |
| }      |                    |           |              |           | TARGETS OF        |
|        |                    |           |              |           | MULTIPLE MYELOMA  |
|        |                    |           |              | ļ         | BASED ON GENE     |
|        |                    |           |              |           | EXPRESSION        |
|        |                    |           |              |           | PROFILING         |
| P.C.T. | PCT/US2005/031038  | 8/31/2005 |              |           | DIAGNOSIS,        |
|        |                    |           |              |           | PROGNOSIS AND     |
|        |                    |           |              |           | IDENTIFICATION OF |
|        |                    |           |              |           | POTENTIAL         |
|        |                    |           |              |           | THERAPEUTIC       |
|        |                    |           |              |           | TARGETS OF        |
|        |                    |           |              |           | MULTIPLE MYELOMA  |
|        |                    |           |              |           | BASED ON GENE     |
| 1      |                    |           |              |           | EXPRESSION        |
|        |                    |           |              | •         | PROFILING         |
| D.C.T. | DCT/LIC2010/002/07 | 10/6/2010 |              |           |                   |
| P.C.T. | PCT/US2010/002697  | 10/6/2010 |              |           | DIAGNOSIS,        |
|        |                    |           |              |           | PROGNOSIS AND     |
|        |                    |           |              |           | IDENTIFICATION OF |
|        |                    | <u> </u>  |              |           | POTENTIAL         |

|                              |                   |           |         |          | THERAPEUTIC TARGETS OF MULTIPLE MYELOMA BASED ON GENE EXPRESSION PROFILING   |
|------------------------------|-------------------|-----------|---------|----------|--|
| U.S.                         | 60/857456         | 11/7/2006 |         |          | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF MULTIPLE MYELOMA TO PREDICT DISEASE PROGRESSION |
| P.C.T.                       | PCT/US2007/023404 | 11/7/2007 |         |          | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF    |
| European<br>Patent<br>Office | 07861764.4        | 11/7/2007 | 2087139 | 1/4/2017 | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF    |
| Switzerland                  | 07861764.4        | 11/7/2007 | 2087139 | 1/4/2017 | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF    |
| Germany                      | 07861764.4        | 11/7/2007 | 2087139 | 1/4/2017 | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF    |
| Denmark                      | 07861764.4        | 11/7/2007 | 2087139 | 1/4/2017 | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH-   |

| _                 |            | <u> </u>  |         |          | DIOK MULTOIDED  |
|-------------------|------------|-----------|---------|----------|---|
|                   |            |           |         |          | RISK MULTIPLE<br>MYELOMA AND USES<br>THEREOF  |
| Spain             | 07861764.4 | 11/7/2007 | 2087139 | 1/4/2017 | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF |
| France            | 07861764.4 | 11/7/2007 | 2087139 | 1/4/2017 | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF |
| United<br>Kingdom | 07861764.4 | 11/7/2007 | 2087139 | 1/4/2017 | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF |
| Italy             | 07861764.4 | 11/7/2007 | 2087139 | 1/4/2017 | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF |
| Netherlands       | 07861764.4 | 11/7/2007 | 2087139 | 1/4/2017 | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF |
| Sweden            | 07861764.4 | 11/7/2007 | 2087139 | 1/4/2017 | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF |

| Japan                        | 2009536276        | 11/7/2007 | 5531360 | 5/9/2014  | GENE EXPRESSION PROFILING BASED IDENTIFICATION OF GENOMIC SIGNATURE OF HIGH- RISK MULTIPLE MYELOMA AND USES THEREOF |
|------------------------------|-------------------|-----------|---------|-----------|---|
| U.S.                         | 61/825396         | 5/20/2013 |         |           | GEP5 MODEL FOR<br>MULTIPLE MYELOMA  |
| P.C.T.                       | PCT/US2014/038626 | 5/19/2014 |         |           | GEP5 MODEL FOR<br>MULTIPLE MYELOMA  |
| U.S.                         | 14/892555         | 5/19/2014 |         |           | GEP5 MODEL FOR<br>MULTIPLE MYELOMA  |
| Canada                       | 2912312           | 5/19/2014 |         |           | GEP5 MODEL FOR<br>MULTIPLE MYELOMA  |
| European<br>Patent<br>Office | 14729567.9        | 5/19/2014 | 2999796 | 3/30/2016 | GEP5 MODEL FOR<br>MULTIPLE MYELOMA  |
| Japan                        | 2016-514991       | 5/19/2014 |         |           | GEP5 MODEL FOR<br>MULTIPLE MYELOMA  |
| European<br>Patent<br>Office | 12150351.0        | 5/20/2005 | 2537942 | 9/23/2015 | USE OF GENE EXPRESSION PROFILING TO PREDICT SURVIVAL IN CANCER PATIENT  |
| Switzerland                  | 12150351.0        | 5/20/2005 | 2537942 | 9/23/2015 | USE OF GENE EXPRESSION PROFILING TO PREDICT SURVIVAL IN CANCER PATIENT  |
| Germany                      | 12150351.0        | 5/20/2005 | 2537942 | 9/23/2015 | USE OF GENE EXPRESSION PROFILING TO PREDICT SURVIVAL IN CANCER PATIENT  |
| Denmark                      | 12150351.0        | 5/20/2005 | 2537942 | 9/23/2015 | USE OF GENE EXPRESSION PROFILING TO PREDICT SURVIVAL IN CANCER PATIENT  |
| Spain                        | 12150351.0        | 5/20/2005 | 2537942 | 9/23/2015 | USE OF GENE EXPRESSION PROFILING TO PREDICT SURVIVAL IN CANCER PATIENT  |

| France      | 12150351.0 | 5/20/2005 | 2537942 | 9/23/2015 | USE OF GENE                   |
|-------------|------------|-----------|---------|-----------|-------------------------------|
| Trance      | 1415035110 | 372072003 | 2337742 | 7/25/2015 | EXPRESSION                    |
|             |            |           |         |           | PROFILING TO                  |
|             |            |           |         |           | PREDICT SURVIVAL              |
|             |            |           |         |           | IN CANCER PATIENT             |
| United      | 12150351.0 | 5/20/2005 | 2537942 | 9/23/2015 | USE OF GENE                   |
| Kingdom     | 12130331.0 | 3/20/2003 | 2331942 | 9/23/2013 | EXPRESSION                    |
|             |            | ,         |         |           | PROFILING TO                  |
|             |            |           |         |           | PREDICT SURVIVAL              |
|             |            |           |         |           | IN CANCER PATIENT             |
| Italy       | 12150351.0 | 5/20/2005 | 2537942 | 9/23/2015 | USE OF GENE                   |
|             | 12130331.0 | 3/20/2003 | 2337942 | 9/23/2013 | EXPRESSION                    |
|             |            |           |         |           | PROFILING TO                  |
|             |            |           |         |           | PREDICT SURVIVAL              |
|             |            |           |         |           | IN CANCER PATIENT             |
| Netherlands | 12150351.0 | 5/20/2005 | 2537942 | 9/23/2015 | USE OF GENE                   |
| Sweden      | 12130331.0 | 3/20/2003 | 2331942 | 9/23/2013 | EXPRESSION                    |
|             |            |           |         |           | PROFILING TO                  |
|             |            |           |         |           |                               |
|             |            |           |         |           | PREDICT SURVIVAL              |
|             | 12150351.0 | 5/20/2005 | 2627042 | 9/23/2015 | IN CANCER PATIENT USE OF GENE |
| Sweden      | 12130331.0 | 3/20/2003 | 2537942 | 9/23/2013 |                               |
|             |            |           |         |           | EXPRESSION<br>PROFILING TO    |
|             |            |           |         |           | PREDICT SURVIVAL              |
|             |            |           |         |           | IN CANCER PATIENT             |
| Canada      | 2567350    | 5/20/2005 |         |           | USE OF GENE                   |
| Canada      | 2307330    | 3/20/2003 |         |           | EXPRESSION                    |
|             |            |           |         |           | PROFILING TO                  |
|             |            |           |         |           | PROFILING TO PREDICT SURVIVAL |
|             |            |           |         |           | IN CANCER PATIENT             |
| U.S.        | 11/133937  | 5/20/2005 | 8843320 | 9/23/2014 | USE OF GENE                   |
| U.S.        | 11/133937  | 3/20/2003 | 8843320 | 9/23/2014 | EXPRESSION                    |
|             |            |           |         |           |                               |
|             | 1          |           |         |           | PROFILING TO                  |
|             |            |           |         |           | PREDICT SURVIVAL              |
| II C        | 12/900106  | 5/21/2012 | 0/50/27 | 5/1/20017 | IN CANCER PATIENT             |
| U.S.        | 13/899196  | 5/21/2013 | 9650677 | 5/16/2017 | USE OF GENE                   |
|             |            |           |         |           | EXPRESSION                    |
|             |            |           |         |           | PROFILING TO                  |
|             |            |           |         |           | PREDICT SURVIVAL              |
|             | .[         |           | 1       |           | IN CANCER PATIENT             |

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**RECORDED: 08/14/2017**