502502918 09/20/2013

PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

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

CONVEYING PARTY DATA

| Name | Execution Date |
|--------------------|----------------|
| Kam Fai Tse | 07/19/2006 |
| Vincent Pollack | 07/06/2006 |
| Luca Rastelli | 07/04/2006 |
| Henri Lichenstein | 07/06/2006 |
| Michael Jeffers | 07/06/2006 |
| William LaRochelle | 07/11/2006 |
| Gulshan Ara | 07/11/2006 |
| Peter Mezes | 07/11/2006 |
| Andrei Chapoval | 07/18/2006 |

RECEIVING PARTY DATA

| Name: | CuraGen Corporation |
|-----------------|----------------------|
| Street Address: | 322 East Main Street |
| City: | Branford |
| State/Country: | CONNECTICUT |
| Postal Code: | 06405 |

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
|---------------------|----------|--|
| Application Number: | 13355366 | |

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent via US Mail when the fax attempt is unsuccessful.

Email: jakarnakis@mintz.com

Correspondent Name: Jennifer A. Karnakis

Address Line 1: One Financial Center

Address Line 4: Boston, MASSACHUSETTS 02111

ATTORNEY DOCKET NUMBER: 21402-669C10US PATENT

502502918 REEL: 031246 FRAME: 0007

| NAME OF SUBMITTER: | Jennifer A. Kamakis |
|--|------------------------|
| Signature: | /Jennifer A. Karnakis/ |
| Date: | 09/20/2013 |
| Total Attachments: 10 source=CURA969_A2_1#page1.tif source=CURA969_A2_1#page2.tif source=CURA969_A2_1#page3.tif source=CURA969_A2_1#page4.tif source=CURA969_A2_1#page5.tif source=CURA969_A2_1#page6.tif source=CURA969_A2_1#page7.tif source=CURA969_A2_1#page8.tif source=CURA969_A2_1#page9.tif source=CURA969_A2_1#page9.tif source=CURA969_A2_1#page10.tif | |

PATENT REEL: 031246 FRAME: 0008

Attorney Docket No. 21402-669-061 Cura 969 PCT

ASSIGNMENT

We, Kam Fai Tse, Vincent A. Pollack, Luca Rastelli, John Herrmann, Henri S. Lichenstein, Michael E. Jeffers, William J. LaRochelle, Gulshan Ara, Peter Mezes, and Andrei Chapoval the undersigned, for good and valuable consideration, the receipt of which is hereby acknowledged, hereby assign, sell and transfer to CuraGen Corporation, a Delaware corporation, with offices at 322 East Main Street, Branford, CT 06405, and its successors, assigns and legal representatives, all hereinafter referred to as the ASSIGNEE:

(1) our entire right, title and interest for the United States and in all countries, in and to any and all inventions, discoveries and applications which are disclosed in the application for United States Letters Patent entitled:

ANTIBODIES DIRECTED TO GPNMB AND USES THEREOF

filed with the U.S. Patent and Trademark Office as International Receiving Office on November 30, 2005, and assigned International Application Serial No. PCT/US2005/043482 including any renewals, revivals, reissues, reexaminations, extensions, continuations and divisions thereof and any substitute applications therefore; (2) the full and complete right to file patent applications in the name of the ASSIGNEE, its designee, or in our names at the ASSIGNEE, or its designee's election, on the aforesaid inventions, discoveries and applications in all countries of the world; (3) the entire right, title and interest in and to any Letters Patent which may issue thereon in the United States or in any country, and any renewals, revivals, reissues, reexaminations and extensions thereof, and any patents of confirmation, registration and importation of the same; and (4) the entire right, title and interest in all Convention and Treaty Rights of all kinds thereon, including without limitation all rights of priority in any country of the world, in and to the above inventions, discoveries and applications.

We hereby authorize and request the competent authorities to grant and to issue any and all such Letters Patent in the United States and throughout the world to the ASSIGNEE of the entire right, title and interest therein, as fully and entirely as the same would have been held and enjoyed by me had this assignment, sale and transfer not been made.

We agree, at any time, upon the request of the ASSIGNEE, to execute and to deliver to the ASSIGNEE any additional applications for patents for said inventions and discoveries, or any part or parts thereof, and any applications for patents of confirmation, registration and importation based on any Letters Patent issuing on said inventions, discoveries, or applications and divisions, continuations, renewals, revivals, reissues, reexaminations and extensions thereof.

We further agree at any time to execute and to deliver upon request of the ASSIGNEE such additional documents, if any, as are necessary or desirable to secure patent protection on said inventions, discoveries and applications throughout all countries of the world, and otherwise to do that necessary to give full effect to and to perfect the rights of the ASSIGNEE under this Assignment, including the execution, delivery and procurement of any and all further documents evidencing this assignment, transfer and sale as may be necessary or desirable.

We hereby covenant that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment.

1

Inventors: Tse, et al.

We further covenant that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Letters Patent and legal equivalents as may be known and accessible to ASSIGNOR and will testify as to the same in any interference, litigation or proceeding related thereto and will promptly execute and deliver to ASSIGNEE or its legal representatives any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said invention and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the purposes thereof.

| Date: July 19,2006 State of Pennsylvania | We les |
|--|----------------------------------|
| 2.00.00 | Signature of: Kam Fai Tse |
| State of PENNSYlvania | |
| County of USA | |
| Subscribed and sworn to before me this | day of |
| | Notary Public |
| | My commission expires |
| | |
| Date: | Signature of: Vincent A. Pollack |
| State of | |
| County of | · |
| Subscribed and sworn to before me this | day of |
| | Notary Public |
| | My commission expires |

Inventors: Tse, et al.

We further covenant that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Letters Patent and legal equivalents as may be known and accessible to ASSIGNOR and will testify as to the same in any interference, litigation or proceeding related thereto and will promptly execute and deliver to ASSIGNEE or its legal representatives any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said invention and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the purposes thereof.

| Date: | Signature of: Kam Fai Tse |
|---|----------------------------------|
| State of | |
| County of | |
| Subscribed and sworn to before me this | day of |
| | Notary Public |
| | My commission expires |
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| | |
| Date: July 6, 2006 | Twent a. Pollack |
| 00. | Signature of: Vincent A. Pollack |
| State of County | |
| Subscribed and sworn to before me this | 2 day of July ZOO |
| | Milalian |
| JENELL MARIE LAWSON Notary Public Connecticut | My commission expires 7/28/09 |
| Commission Expires Feb 28, 2009 | |

-2-

PATENT REEL: 031246 FRAME: 0011

| Date: State of County of Connecticut My Commission Expires Feb 28, 2009 | Signature of: Luca Rastelli day of U. Mutary Public My commission expires 2/2-6/9 |
|--|--|
| Date: | Signature of: John Herrmann |
| State of | <u> </u> |
| County of | |
| Subscribed and sworn to before me this | |
| | Notary Public |
| | |
| | My commission expires |

Attorney Docket No.: 21402-669-061 Inventors: Tse, et al.

Inventors: Tse, et al.

Date:

7/6/06

Signature of: Henri S. Lichenstein

State of

County of

Subscribed and sworn to before me this day of

JENELL MARIE LAWSON Notary Public Connecticut
My Commission Expires Feb 28, 2009

| N | Signature of: Michael E. Jeffers day of Commission expires MARIE LAWSON otory Public connecticut ion Expires Feb 28, 2009 |
|--|---|
| Date: | Signature of: William J. LaRochelle |
| State of | |
| County of | |
| Subscribed and sworn to before me this | _ day of |
| | Notary Public |

My commission expires

| inventors: Tse, et al. | |
|--|-------------------------------------|
| Date: | Signature of: Michael E. Jeffers |
| State of | |
| County of | |
| Subscribed and sworn to before me this | day of |
| | Notary Public |
| | My commission expires |
| | |
| | Q_{1} Q_{2} Q_{3} Q_{4} |
| Date: 7/11/01 | Signature of: William J. LaRochelle |
| State of Country of All HOLL | ν — |
| Subscribed and sworn to before me this | L day of $Alg GQ$. |
| | Motar Public Protection |
| | |

| Attorney Docket No.: 21402-669-061 Inventors: Tse, et al. | |
|--|---------------------------|
| Date: 7/11/Olf | Gulshan ara |
| | Signature of: Gulshan Ara |
| State of | |
| County of Aus Haul | |
| Subscribed and sworn to before me this 4 | Salbuon |
| January Company of the Company of th | Nothing Phoblic 2/20/03 |
| JENELL MARIE LAWSON Notary Public Connecticut My Commission Expires Feb 28 | My commission expires |
| Date: | Signature of: Peter Mezes |
| State of | |
| County of | |
| Subscribed and sworn to before me this | _ day of |
| | Notary Public |
| | My commission expires |

| Attorney Docket No.: 21402-669-061 Inventors: Tse, et al. | |
|--|---|
| Date: | Signature of: Gulshan Ara |
| | Signature vi. Guishan 211 a |
| State of | <u> </u> |
| County of | - |
| Subscribed and sworn to before me this | day of |
| | Notary Public |
| | My commission expires |
| Date: July 11, 2006 | Pullule 70 Signature of: Peter Mozes |
| State of County of All Malle | |
| Subscribed and sworn to before me this | day of COCI |
| | My commission expires 2/28/09 |
| JENELL MARIE LAWSON Notary Public Connecticut My Commission Expires Feb 28, 2000 | <i>l l (</i> |

Attorney Docket No.: 21402-669-061
Inventors: Tse, et al.

Date: OY. 18. OG

Signature of: Andrei Chapoval

County of Barrawe City

Subscribed and sworn to before me this 18 day of July 2006.

My commission expires 8 3 2008

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