

**PATENT ASSIGNMENT**

Electronic Version v1.1  
 Stylesheet Version v1.1

|  |  |
|--|--|
| SUBMISSION TYPE:   | NEW ASSIGNMENT                         |
| NATURE OF CONVEYANCE:  | ASSIGNMENT                             |
| <b>CONVEYING PARTY DATA</b>  |  |
| <b>Name</b>  | <b>Execution Date</b>                  |
| Birgitte Binderup Simen  | 06/30/2009                             |
| Elizabeth Patricia St. John  | 06/30/2009                             |
| <b>RECEIVING PARTY DATA</b>  |  |
| <b>Name:</b>   | 454 Life Sciences Corporation          |
| <b>Street Address:</b>   | 20 Commercial Street                   |
| <b>City:</b>   | Branford                               |
| <b>State/Country:</b>  | CONNECTICUT                            |
| <b>Postal Code:</b>  | 06405                                  |
| <b>PROPERTY NUMBERS Total: 1</b>   |  |
| <b>Property Type</b>   | <b>Number</b>                          |
| <b>Application Number:</b>   | 12970036                               |
| <b>CORRESPONDENCE DATA</b>   |  |
| <b>Fax Number:</b>   | (212)983-3115                          |
| <i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i> |  |
| <b>Phone:</b>  | (212) 935-3000                         |
| <b>Email:</b>  | sabelardo@mintz.com                    |
| <b>Correspondent Name:</b>   | Mintz Levin Cohn Ferris Glovsky et al. |
| <b>Address Line 1:</b>   | 666 Third Avenue - 24th Floor          |
| <b>Address Line 4:</b>   | New York, NASA 10017                   |
| <b>ATTORNEY DOCKET NUMBER:</b>   | 21465-540D01US                         |
| <b>NAME OF SUBMITTER:</b>  | Michelle A. Iwamoto                    |

**Total Attachments: 5**

source=21465-540D01US - Recordation Form Cover Sheet and Assignment#page1.tif

source=21465-540D01US - Recordation Form Cover Sheet and Assignment#page2.tif

source=21465-540D01US - Recordation Form Cover Sheet and Assignment#page3.tif

**501459114**

**PATENT**  
**REEL: 025913 FRAME: 0709**

**CH \$40.00 12970036**

source=21465-540D01US - Recordation Form Cover Sheet and Assignment#page4.tif

source=21465-540D01US - Recordation Form Cover Sheet and Assignment#page5.tif

RECORDATION FORM COVER SHEET  
PATENTS ONLY

FORM PTO-1595  
(Rev. 6-93)  
OMB No. 0651-0011 (exp. 4/94)

U.S. DEPARTMENT OF COMMERCE  
Patent and Trademark Office

Please record the attached original documents or copy thereof.

|  |  |  |
|--|--|--|
| <b>1. Name of conveying party(ies):</b><br>Birgitte Binderup Simen<br>Elizabeth Patricia St. John  | <b>Execution Date:</b><br>June 30, 2009<br>June 30, 2009 | <b>2. Name and address of receiving party(ies)</b><br>454 Life Sciences Corporation<br>20 Commercial Street<br>Branford, Connecticut 06405 |
| Additional name(s) of conveying party(ies) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   |  | Additional name(s) & address(es) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                             |
| <b>3. Nature of conveyance:</b><br><input checked="" type="checkbox"/> Assignment <input type="checkbox"/> Merger<br><input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name<br><input type="checkbox"/> Other |  |  |

**4. Application number(s) or patent number(s):**  
If this document is being filed together with a new application, the execution date of the application is \_\_\_\_\_

**A. Patent Application No(s):**                      **B. Patent No(s):**  
12/970,036, filed December 16, 2010

Additional numbers attached?  Yes  No

**5. Name and address of party to whom correspondence Concerning document should be mailed:**

Name: Ivor R. Elrifi, Esq. Reg. No. 39,529  
Address: MINTZ, LEVIN, COHN, FERRIS  
GLOVSKY and POPEO, P.C.  
666 Third Avenue, 24<sup>th</sup> Floor  
New York, New York 10017  
Telephone: (212) 935-3000  
Telefax: (212) 983-3115  
Customer No. 35437

**6. Total number of applications and patents involved:** [ 1 ]

**7. Total fee (37 CFR 3.41)** \$40.00

Charge to Deposit Account 50-0311.  
 The Commissioner is authorized to charge Deposit Account No: 50-0311, Reference No. 21465-540D01US for any deficiencies.

DO NOT USE THIS SPACE

**9. Statement and signature**  
*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*

Michelle A. Iwamoto, Reg. No. 55,296                      Michelle A Iwamoto                      August 14, 2009

Name of Person Signing                      Signature                      Date

Total number of pages including cover sheet: (5)

Mail documents to be recorded with required cover sheet information to:  
**MAIL STOP ASSIGNMENT RECORDATION SERVICES**  
Director of the United States Patent and Trademark Office  
P. O. Box 1450; Alexandria, VA 22313-1450

**ASSIGNMENT**

I, Birgitte Binderup SIMEN and Elizabeth Patricia ST. JOHN, the undersigned, for good and valuable consideration, the receipt of which is hereby acknowledged, hereby assign, sell and transfer to **454 Life Sciences Corporation**, a Delaware corporation, with offices at **20 Commercial Street, Branford, Connecticut 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:

**SYSTEM AND METHOD FOR DETECTION  
OF HIV TROPISM VARIANTS**

filed with the U.S. Patent and Trademark Office on June 17, 2009<sup>1</sup> and assigned Serial No. 12/456,528<sup>1</sup>, including any subsequently filed utility applications, which claims priority to U.S. Provisional Patent Application Serial No. **61/077,356**, filed **July 1, 2008**, including any renewals, revivals, reissues, reexaminations, extensions, continuations and divisions thereof and any substitute applications therefor; (2) the full and complete right to file patent applications in the name of the ASSIGNEE, its designee, or in my/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.

I 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/us had this assignment, sale and transfer not been made.

I 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.

I 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 the 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.

---

<sup>1</sup> Any attorney or agent of record and any registered attorney or agent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Chrysler Center, 666 Third Avenue, New York, NY 10017, Telephone No. (212) 935-3000, is hereby authorized to insert, when known.

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

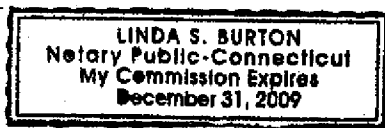
I further covenant that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Letters Patent and legal equivalents as may be known and accessible to ASSIGNOR and will testify as to the same in any interference, litigation or proceeding 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: 30 June, 2009

Birgitte S.  
Signature of **Birgitte Binderup Simen**

On this 30th day of June 2009, before me, the undersigned notary public, personally appeared Birgitte Binderup Simen, proved to me through satisfactory evidence of identification, which were USA company Photo / ID BADGE, to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his)(her) knowledge and belief.

Linda S. Burton  
Notary Public  
My commission expires: December 31, 2009



Date: \_\_\_\_\_

Signature of: **Elizabeth Patricia St. John**

On this \_\_\_\_\_ day of \_\_\_\_\_ 2009, before me, the undersigned notary public, personally appeared \_\_\_\_\_, proved to me through satisfactory evidence of identification, which were \_\_\_\_\_, to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his)(her) knowledge and belief.

\_\_\_\_\_  
Notary Public  
My commission expires: \_\_\_\_\_

**ASSIGNMENT**

I, Birgitte Binderup SIMEN and Elizabeth Patricia ST. JOHN, the undersigned, for good and valuable consideration, the receipt of which is hereby acknowledged, hereby assign, sell and transfer to **454 Life Sciences Corporation**, a Delaware corporation, with offices at **20 Commercial Street, Branford, Connecticut 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:

**SYSTEM AND METHOD FOR DETECTION  
OF HIV TROPISM VARIANTS**

filed with the U.S. Patent and Trademark Office on June 17, 2009<sup>1</sup> and assigned Serial No. 12/456,528<sup>1</sup>, including any subsequently filed utility applications, which claims priority to U.S. Provisional Patent Application Serial No. 61/077,356, filed July 1, 2008, including any renewals, revivals, reissues, reexaminations, extensions, continuations and divisions thereof and any substitute applications therefor; (2) the full and complete right to file patent applications in the name of the ASSIGNEE, its designee, or in my/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.

I 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/us had this assignment, sale and transfer not been made.

I 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.

I 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 the 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.

<sup>1</sup> Any attorney or agent of record and any registered attorney or agent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Chrysler Center, 666 Third Avenue, New York, NY 10017, Telephone No. (212) 935-3000, is hereby authorized to insert, when known.

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

I 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: Birgitte Binderup Simen

On this \_\_\_\_\_ day of \_\_\_\_\_ 2009, before me, the undersigned notary public, personally appeared \_\_\_\_\_, proved to me through satisfactory evidence of identification, which were \_\_\_\_\_, to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his)(her) knowledge and belief.

Notary Public  
My commission expires: \_\_\_\_\_

Date: 06-30-09

Elizabeth St. John  
Signature of: Elizabeth Patricia St. John

On this 30<sup>th</sup> day of June 2009, before me, the undersigned notary public, personally appeared Elizabeth Patricia St. John, proved to me through satisfactory evidence of identification, which were 754 Company Photo ID Badge, to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his)(her) knowledge and belief.

Linda S. Burton  
Notary Public  
My commission expires: December 31, 2009.

