

PATENT ASSIGNMENT

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SUBMISSION TYPE:	NEW ASSIGNMENT								
NATURE OF CONVEYANCE:	ASSIGNMENT								
CONVEYING PARTY DATA									
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Ted M. Ross</td> <td>07/17/2012</td> </tr> <tr> <td>Brendan M. Giles</td> <td>07/24/2012</td> </tr> <tr> <td>Corey J. Crevar</td> <td>07/17/2012</td> </tr> </tbody> </table>		Name	Execution Date	Ted M. Ross	07/17/2012	Brendan M. Giles	07/24/2012	Corey J. Crevar	07/17/2012
Name	Execution Date								
Ted M. Ross	07/17/2012								
Brendan M. Giles	07/24/2012								
Corey J. Crevar	07/17/2012								
RECEIVING PARTY DATA									
Name:	University of Pittsburgh - Of The Commonwealth System of Higher Education								
Street Address:	200 Gardner Steel Conference Center								
Internal Address:	Thackeray and O'Hara Streets								
City:	Pittsburgh								
State/Country:	PENNSYLVANIA								
Postal Code:	15260								
PROPERTY NUMBERS Total: 1									
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>PCT Number:</td> <td>US1243347</td> </tr> </tbody> </table>		Property Type	Number	PCT Number:	US1243347				
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PCT Number:	US1243347								
CORRESPONDENCE DATA									
Fax Number:	5035955301								
Phone:	503-595-5300								
Email:	cynthia.failla@klarquist.com								
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.</i>									
Correspondent Name:	Jodi Connolly, Klarquist Sparkman, LLP								
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Address Line 2:	One World Trade Center								
Address Line 4:	Portland, OREGON 97204-2988								
ATTORNEY DOCKET NUMBER:	8123-87208-02								
NAME OF SUBMITTER:	Jodi L. Connolly, Ph.D.								

CH \$40.00 US1243347

Total Attachments: 8

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ASSIGNMENT

WHEREAS, we, Ted M. Ross, of Pittsburgh, PA, Brendan M. Giles, of Denver, CO, and Corey J. Crevar, of West Mifflin, PA, have invented a certain invention as described in the following patent applications:

U.S. Provisional Patent Application No. 61/498,800, filed on June 20, 2011, entitled
“COMPUTATIONALLY OPTIMIZED BROADLY REACTIVE ANTIGENS FOR
H1N1 INFLUENZA,”

PCT Patent Application No. PCT/US2012/043347, filed on June 20, 2012, entitled
“COMPUTATIONALLY OPTIMIZED BROADLY REACTIVE ANTIGENS FOR
H1N1 INFLUENZA,”

which applications are collectively referred to as “the patent applications.”

WHEREAS, University of Pittsburgh – Of the Commonwealth System of Higher Education (hereinafter “UNIVERSITY OF PITTSBURGH”), a non-profit entity organized and existing under the laws of the Commonwealth of Pennsylvania, having a place of business at 200 Gardner Steel Conference Center, Thackeray and O’Hara Streets, Pittsburgh, Pennsylvania 15260, desires to acquire an interest therein:

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, we, Ted M. Ross, Brendan M. Giles, Corey J. Crevar, hereby sell, assign and transfer to UNIVERSITY OF PITTSBURGH, the full and exclusive right, title and interest in and to said invention, patent application and patent rights throughout the world, including foreign patent priority rights, the right to file and prosecute International Applications under the Patent Cooperation Treaty, and the right to file and prosecute applications under the European Patent Convention; said invention, the patent applications and letters patent in this or any foreign country, and all corresponding non-provisional applications, divisions, continuations, continuations-in-part, reissues and extensions thereof, to be held and enjoyed by UNIVERSITY OF PITTSBURGH, for its own use and benefit, and for its successors and assigns to the full end of the term for which letters patent may be granted by the United States or any foreign country, as fully and entirely as the same would have been held by us had this assignment and sale not been

made, and covenant that we have full right so to do, and agree that we will communicate to UNIVERSITY OF PITTSBURGH, or its successors and assigns, any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing and reissue applications, make all rightful oaths, and do everything possible to aid UNIVERSITY OF PITTSBURGH, its successors and assigns to obtain and enforce proper patent protection for said invention in the United States or any foreign country.

We confirm that at the time the invention was made, we were under an obligation to assign the invention to UNIVERSITY OF PITTSBURGH.

We hereby grant the law firm of Klarquist Sparkman, LLP, the power to insert on this Assignment any further information which may be necessary or desirable in order to comply with all applicable legal requirements, including the rules of the United States Patent and Trademark Office, for submitting and recording this document.

Executed at the place and date opposite our respective signatures below.

Ted Ross

Ted M. Ross

At Pittsburgh, PA

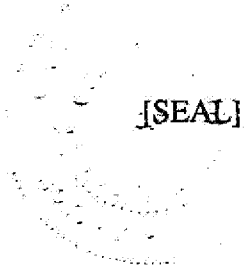
(City and State)
on this 17th day of July, 2012.

STATE OF Pennsylvania)
) ss.
COUNTY OF Allegheny)

This 17th day of July, 2012, before me personally came the above-named Ted M. Ross, who executed the foregoing instrument in my presence, and who acknowledged to me that this instrument was executed by Ted M. Ross's own free will for the purpose set forth therein.

Carla D Crawford

Notary Public For
My commission expires:



[SEAL]

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Carla D. Crawford, Notary Public
City of Pittsburgh, Allegheny County
My Commission Expires Sept. 1, 2013
Member, Pennsylvania Association of Notaries

Brendan M. Giles

At _____
(City and State)

on this ___ day of _____, 2012.

STATE OF)
) ss.
COUNTY OF)

This ___ day of _____, 2012, before me personally came the above-named
Brendan M. Giles, who executed the foregoing instrument in my presence, and who
acknowledged to me that this instrument was executed by Brendan M. Giles's own free will for
the purpose set forth therein.

Notary Public For
My commission expires:

[SEAL]

Corey J. Crevar
 Corey J. Crevar

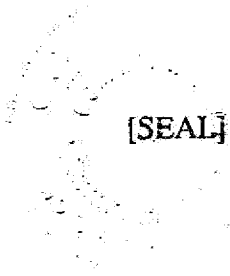
At Pittsburgh, PA
 (City and State)

on this 17th day of July, 2012.

STATE OF Pennsylvania)
) ss.
 COUNTY OF Allegheny)

This 17th day of July, 2012, before me personally came the above-named Corey J. Crevar, who executed the foregoing instrument in my presence, and who acknowledged to me that this instrument was executed by Corey J. Crevar's own free will for the purpose set forth therein.

Carla D Crawford
 Notary Public For
 My commission expires:



[SEAL]

COMMONWEALTH OF PENNSYLVANIA
 Notarial Seal
 Carla D. Crawford, Notary Public
 City of Pittsburgh, Allegheny County
 My Commission Expires Sept. 1, 2013
 Member, Pennsylvania Association of Notaries

ASSIGNMENT

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NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, we, Ted M. Ross, Brendan M. Giles, Corey J. Crevar, hereby sell, assign and transfer to UNIVERSITY OF PITTSBURGH, the full and exclusive right, title and interest in and to said invention, patent application and patent rights throughout the world, including foreign patent priority rights, the right to file and prosecute International Applications under the Patent Cooperation Treaty, and the right to file and prosecute applications under the European Patent Convention; said invention, the patent applications and letters patent in this or any foreign country, and all corresponding non-provisional applications, divisions, continuations, continuations-in-part, reissues and extensions thereof, to be held and enjoyed by UNIVERSITY OF PITTSBURGH, for its own use and benefit, and for its successors and assigns to the full end of the term for which letters patent may be granted by the United States or any foreign country, as fully and entirely as the same would have been held by us had this assignment and sale not been

made, and covenant that we have full right so to do, and agree that we will communicate to UNIVERSITY OF PITTSBURGH, or its successors and assigns, any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing and reissue applications, make all rightful oaths, and do everything possible to aid UNIVERSITY OF PITTSBURGH, its successors and assigns to obtain and enforce proper patent protection for said invention in the United States or any foreign country.

We confirm that at the time the invention was made, we were under an obligation to assign the invention to UNIVERSITY OF PITTSBURGH.

We hereby grant the law firm of Klarquist Sparkman, LLP, the power to insert on this Assignment any further information which may be necessary or desirable in order to comply with all applicable legal requirements, including the rules of the United States Patent and Trademark Office, for submitting and recording this document.

Executed at the place and date opposite our respective signatures below.

Ted M. Ross

At _____
(City and State)
on this ____ day of _____, 2012.

STATE OF)
) ss.
COUNTY OF)

This ____ day of _____, 2012, before me personally came the above-named Ted M. Ross, who executed the foregoing instrument in my presence, and who acknowledged to me that this instrument was executed by Ted M. Ross's own free will for the purpose set forth therein.

Notary Public For
My commission expires:

[SEAL]

B. M. Giles

Brendan M. Giles

At Denver, CO
(City and State)
on this 24 day of July, 2012.

STATE OF Colorado)
)
City COUNTY OF Denver) ss.

This 24th day of July, 2012, before me personally came the above-named
Brendan M. Giles, who executed the foregoing instrument in my presence, and who
acknowledged to me that this instrument was executed by Brendan M. Giles's own free will for
the purpose set forth therein.

CHRISTINA M. MEISEL
NOTARY PUBLIC, STATE OF COLORADO
My Comm. Expires 02/06/2016

Christina M. Meisel
Notary Public For State of Colorado
My commission expires: 2/6/2016

[SEAL]

Corey J. Crevar

At _____

(City and State)

on this _____ day of _____, 2012.

STATE OF)
) ss.
COUNTY OF)

This ___ day of _____, 2012, before me personally came the above-named Corey J. Crevar, who executed the foregoing instrument in my presence, and who acknowledged to me that this instrument was executed by Corey J. Crevar's own free will for the purpose set forth therein.

Notary Public For
My commission expires:

[SEAL]