

PATENT ASSIGNMENT COVER SHEET

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|---|--|---------------|----------------|---------------------|------------|---------------|--------------|--------------|------------|------------------------|------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT | | | | | | | | | | |
| CONVEYING PARTY DATA | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>TONY FLEMING</td> <td>06/08/2012</td> </tr> <tr> <td>ROU-FUN KWONG</td> <td>06/11/2012</td> </tr> <tr> <td>SAURABH SAHA</td> <td>06/11/2012</td> </tr> <tr> <td>XIAOYAN MICHELLE ZHANG</td> <td>06/08/2012</td> </tr> </tbody> </table> | | Name | Execution Date | TONY FLEMING | 06/08/2012 | ROU-FUN KWONG | 06/11/2012 | SAURABH SAHA | 06/11/2012 | XIAOYAN MICHELLE ZHANG | 06/08/2012 |
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| ROU-FUN KWONG | 06/11/2012 | | | | | | | | | | |
| SAURABH SAHA | 06/11/2012 | | | | | | | | | | |
| XIAOYAN MICHELLE ZHANG | 06/08/2012 | | | | | | | | | | |
| RECEIVING PARTY DATA | | | | | | | | | | | |
| Name: | NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH INC. | | | | | | | | | | |
| Street Address: | 250 MASSACHUSETTS AVE | | | | | | | | | | |
| City: | CAMBRIDGE | | | | | | | | | | |
| State/Country: | MASSACHUSETTS | | | | | | | | | | |
| Postal Code: | 02139 | | | | | | | | | | |
| PROPERTY NUMBERS Total: 2 | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>61496986</td> </tr> <tr> <td>PCT Number:</td> <td>US2012042315</td> </tr> </tbody> </table> | | Property Type | Number | Application Number: | 61496986 | PCT Number: | US2012042315 | | | | |
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| PCT Number: | US2012042315 | | | | | | | | | | |
| CORRESPONDENCE DATA | | | | | | | | | | | |
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| ATTORNEY DOCKET NUMBER: | 4239-86214-01 | | | | | | | | | | |
| NAME OF SUBMITTER: | GREGORY K. SCOTT | | | | | | | | | | |

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PATENT

| | |
|--|--------------------|
| Signature: | /Gregory K. Scott/ |
| Date: | 10/23/2013 |
| <p>Total Attachments: 15</p> <p>source=NovartisAssignment1#page1.tif source=NovartisAssignment1#page2.tif source=NovartisAssignment1#page3.tif source=NovartisAssignment1#page4.tif source=NovartisAssignment1#page5.tif source=NovartisAssignment1#page6.tif source=NovartisAssignment1#page7.tif source=NovartisAssignment1#page8.tif source=NovartisAssignment1#page9.tif source=NovartisAssignment1#page10.tif source=NovartisAssignment1#page11.tif source=NovartisAssignment1#page12.tif source=NovartisAssignment1#page13.tif source=NovartisAssignment1#page14.tif source=NovartisAssignment1#page15.tif</p> | |

ASSIGNMENT

This Assignment Agreement is entered into by and between

| <u>Inventor Name</u> | <u>Citizenship</u> | <u>Address at time of Invention</u> |
|------------------------|-------------------------------------|---|
| Tony FLEMING | citizen of United States of America | Novartis Institutes for Biomedical Research, Inc. 250 Massachusetts Avenue Cambridge, MA 02139 USA |
| Rou-Fun KWONG | citizen of United States of America | Novartis Institutes for BioMedical Research, Inc. 250 Massachusetts Avenue Cambridge, MA 02139 USA |
| Saurabh SAHA | citizen of United States of America | Novartis Institutes for BioMedical Research, Inc. 250 Massachusetts Avenue Cambridge, MA 02139 USA |
| Xiaoyan Michelle ZHANG | citizen of United States of America | Novartis Institutes for BioMedical Research, Inc. 250 Massachusetts Avenue Cambridge, MA 02139 USA |

(hereinafter "Inventor(s)"), and **Novartis Institutes for Biomedical Research Inc.**, 250 Massachusetts Ave, Cambridge, MA 02139, USA, a company organized under the laws of Delaware.

Pursuant to the respective employment agreement with the Novartis Institutes for Biomedical Research of each of the undersigned, I/We the Inventor(s) do hereby confirm and agree that, by operation of law and/or contract, and/or by the fulfillment of any and all legal requirements regarding the transfer of employee inventions in my/our country of employment, Novartis Institutes for Biomedical Research Inc. is the true and lawful owner of all right, title and interest in all inventions, discoveries, patents/utility models, applications, and rights described in paragraphs (1) through (8) below.

If, however, under the laws of any country, I/We the Inventor(s) nevertheless have any ownership right, title or interest in any of the items described herein (which I/We do not believe to be the case and make no claim in or to), pursuant to the respective employment agreement with the Novartis Institutes for Biomedical Research of each of the undersigned, I/We the Inventor(s) do hereby sell, assign and transfer to Novartis Institutes for Biomedical Research Inc. and its successors, assigns and legal representatives (hereinafter referred to collectively as the "ASSIGNEE"), all of our right, title and interest for all countries of the world in and to

(1) all of our inventions and discoveries described in the provisional or non-provisional patent, utility model, or other application(s) entitled

CONJUGATES, ANTIBODIES, AND THEIR USE

and filed in the to be determined Office on to be determined and accorded Application Number to be determined and/or filed as a PCT International Application on to be determined and accorded International Patent Application Number to be determined; and/or filed in the United States Patent and Trademark Office on 14 June, 2011 and accorded Application Number 61/496,986;

(2) the application(s) identified in paragraph (1), and all applications claiming priority from such application(s), directly or indirectly, including all national stages of any international patent application(s), but not continuation-in-part applications except as specifically enumerated in paragraph (5);

(3) the right to file patent, utility model, or other applications on any invention or discovery disclosed in any of the applications identified in paragraphs (1) and (2), including the right to file such applications on said inventions and discoveries in the names of ASSIGNEE or their designees or in our/my name, at ASSIGNEE's election and in accordance with applicable law in all countries and regions; and the right to file all patent, utility model, or other applications in all countries and regions claiming the priority of any of the provisional or non-provisional application(s) identified in paragraphs (1) or (2);

(4) all rights to claim priority from any of the applications referred to in paragraphs (1), (2), and (3) or from any application from which any of the applications referred to in paragraphs (1), (2) and (3) claim priority in all countries and regions under the Paris Convention for the Protection of Industrial Property, the WTO GATT TRIPS Agreement, the Inter-American Convention relating to Inventions, Patents, Designs, and Industrial Models and all other international agreements to which the United States now is or hereafter becomes a signatory and, if the United States patent application is a provisional patent application, under 35 USC 119(e);

(5) all continuations and divisionals of any United States patent application(s) or international patent application(s) designating the United States, any national stages of any international application(s), and any other patent application(s) described in paragraphs (1) through (4) hereof, including further continuations and divisionals such as, but not limited to, continuations of continuations and continuations of divisionals and all continuation-in-part applications where the claims of such applications are directed to inventions disclosed in whole or in part in the patent applications identified in paragraph (1) by application number and filing date and to which benefit is properly claimed under 35 USC §120;

(6) all patents, utility models, or other grants that issue from any of the applications referred to herein and all rights and remedies associated therewith including the right to sue for and recover past damages and to recover under 35 U.S.C. § 154 (d) or any other law permitting remedies for infringement prior to issuance of the patent;

(7) all registrations and confirmations of, and importation certificates based upon, one or more of said patents, utility models, or other grants, and applications for such registrations, confirmations and importation certificates and;

(8) all reissues, renewals and extensions of said patents, utility models, registrations, confirmations and importation certificates, reexamination certificates issued for said patents and supplementary protection certificates based upon said patents and applications for such reissues, renewals, extensions, reexamination certificates and supplementary protection certificates, the same to be held and enjoyed by said ASSIGNEE to the full ends of the terms for which said patents, utility models, registrations, confirmations, importation certificates, reexamination certificates, supplementary protection certificates, reissues, renewals and extensions may be granted, as fully and entirely as the same would have been held and enjoyed by me/us if this sale, assignment and transfer had not been made.

I/We the Inventor(s) hereby authorize ASSIGNEE and their representatives to insert in paragraph (1) of this Assignment the filing date(s) and Application Number(s) of said patent, utility model, or other application(s) when notified thereof.

I/We the Inventor(s) hereby covenant and agree that I/We will, at any time, (i) upon the request, but at the expense, of ASSIGNEE, execute and deliver all documents that may be necessary or desirable to perfect the title to the foregoing inventions and discoveries, applications, patents, utility models, registrations, confirmations, importation certificates, reissues, renewals, extensions, reexamination certificates, supplementary protection certificates, and applications within the scope of (7) and (8), in ASSIGNEE, including the execution and procurement of all further documents evidencing this sale, assignment and transfer as may be necessary or desirable for recording the same in the patent office or other intellectual property office, agency or the like of any country or region, (ii) upon the request, but at the expense, of ASSIGNEE execute all additional applications within the scope of paragraphs (1) through (6) and all applications within the scope of (7) or (8), and (iii) make all rightful oaths and declarations and do all lawful acts requisite for procuring the same or for aiding therein, without further compensation, but at the expense of ASSIGNEE .

Should any provision of this Assignment be deemed invalid or unenforceable by reason of any law, statute, regulation or judgment, existing now or in the future in any jurisdiction, such provision shall be modified in such jurisdiction so as to nearly approximate the intent of the Parties. If this cannot be done, such invalid or unenforceable provision shall be divisible and be deleted in any such jurisdiction, and all other provisions shall remain in full force and effect. The modification or deletion of any provision in one jurisdiction shall have no effect on this Assignment in any other jurisdiction.

This Assignment shall be governed by the laws of the state of Delaware.

This Assignment is effective as from the earliest priority date as stated above.

Executed this 8th day of June, 2012.

BY Tony Fleming L.S.
Tony Fleming

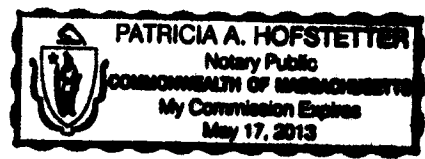
On this 8th day of June 2012, before me, the undersigned notary public, personally appeared Tony Fleming, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

[Signature], Notary Public
My commission expires 5-11-2018

BY Rou-Fun Kwong L.S.
Rou-Fun Kwong

On this 11th day of June 2012, before me, the undersigned notary public, personally appeared Rou-Fun Kwong, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

[Signature], Notary Public
My commission expires _____



BY _____ L.S.
Saurabh Saha

On this _____ day of _____ 20____, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

_____, Notary Public

My commission expires _____

BY _____ L.S.
Xiaoyan Michelle Zhang

On this ____ day of _____ 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

_____, Notary Public

My commission expires _____

Executed this 12th day of June, 2018.

Novartis Institutes for Biomedical Research Inc.

BY Melissa Ponziano L.S.

On this 12 day of June 2018, before me, the undersigned notary public, personally appeared Melissa Ponziano, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

[Signature], Notary Public

My commission expires 5-11-2018

ASSIGNMENT

This Assignment Agreement is entered into by and between

| <u>Inventor Name</u> | <u>Citizenship</u> | <u>Address at time of Invention</u> |
|------------------------|-------------------------------------|---|
| Tony FLEMING | citizen of United States of America | Novartis Institutes for Biomedical Research, Inc. 250 Massachusetts Avenue Cambridge, MA 02139 USA |
| Rou-Fun KWONG | citizen of United States of America | Novartis Institutes for BioMedical Research, Inc. 250 Massachusetts Avenue Cambridge, MA 02139 USA |
| Saurabh SAHA | citizen of United States of America | Novartis Institutes for BioMedical Research, Inc. 250 Massachusetts Avenue Cambridge, MA 02139 USA |
| Xiaoyan Michelle ZHANG | citizen of United States of America | Novartis Institutes for BioMedical Research, Inc. 250 Massachusetts Avenue Cambridge, MA 02139 USA |

(hereinafter "Inventor(s)"), and **Novartis Institutes for Biomedical Research Inc.**, 250 Massachusetts Ave, Cambridge, MA 02139, USA, a company organized under the laws of Delaware.

Pursuant to the respective employment agreement with the Novartis Institutes for Biomedical Research of each of the undersigned, I/We the Inventor(s) do hereby confirm and agree that, by operation of law and/or contract, and/or by the fulfillment of any and all legal requirements regarding the transfer of employee inventions in my/our country of employment, Novartis Institutes for Biomedical Research Inc. is the true and lawful owner of all right, title and interest in all inventions, discoveries, patents/utility models, applications, and rights described in paragraphs (1) through (8) below.

If, however, under the laws of any country, I/We the Inventor(s) nevertheless have any ownership right, title or interest in any of the items described herein (which I/We do not believe to be the case and make no claim in or to), pursuant to the respective employment agreement with the Novartis Institutes for Biomedical Research of each of the undersigned, I/We the Inventor(s) do hereby sell, assign and transfer to Novartis Institutes for Biomedical Research Inc. and its successors, assigns and legal representatives (hereinafter referred to collectively as the "ASSIGNEE"), all of our right, title and interest for all countries of the world in and to

(1) all of our inventions and discoveries described in the provisional or non-provisional patent, utility model, or other application(s) entitled

CONJUGATES, ANTIBODIES, AND THEIR USE

and filed in the to be determined Office on to be determined and accorded Application Number to be determined and/or filed as a PCT International Application on to be determined and accorded International Patent Application Number to be determined; and/or filed in the United States Patent and Trademark Office on 14 June, 2011 and accorded Application Number 61/496,986;

(2) the application(s) identified in paragraph (1), and all applications claiming priority from such application(s), directly or indirectly, including all national stages of any international patent application(s), but not continuation-in-part applications except as specifically enumerated in paragraph (5);

(3) the right to file patent, utility model, or other applications on any invention or discovery disclosed in any of the applications identified in paragraphs (1) and (2), including the right to file such applications on said inventions and discoveries in the names of ASSIGNEE or their designees or in our/my name, at ASSIGNEE's election and in accordance with applicable law in all countries and regions; and the right to file all patent, utility model, or other applications in all countries and regions claiming the priority of any of the provisional or non-provisional application(s) identified in paragraphs (1) or (2);

(4) all rights to claim priority from any of the applications referred to in paragraphs (1), (2), and (3) or from any application from which any of the applications referred to in paragraphs (1), (2) and (3) claim priority in all countries and regions under the Paris Convention for the Protection of Industrial Property, the WTO GATT TRIPS Agreement, the Inter-American Convention relating to Inventions, Patents, Designs, and Industrial Models and all other international agreements to which the United States now is or hereafter becomes a signatory and, if the United States patent application is a provisional patent application, under 35 USC 119(e);

(5) all continuations and divisionals of any United States patent application(s) or international patent application(s) designating the United States, any national stages of any international application(s), and any other patent application(s) described in paragraphs (1) through (4) hereof, including further continuations and divisionals such as, but not limited to, continuations of continuations and continuations of divisionals and all continuation-in-part applications where the claims of such applications are directed to inventions disclosed in whole or in part in the patent applications identified in paragraph (1) by application number and filing date and to which benefit is properly claimed under 35 USC §120;

(6) all patents, utility models, or other grants that issue from any of the applications referred to herein and all rights and remedies associated therewith including the right to sue for and recover past damages and to recover under 35 U.S.C. § 154 (d) or any other law permitting remedies for infringement prior to issuance of the patent;

(7) all registrations and confirmations of, and importation certificates based upon, one or more of said patents, utility models, or other grants, and applications for such registrations, confirmations and importation certificates and;

(8) all reissues, renewals and extensions of said patents, utility models, registrations, confirmations and importation certificates, reexamination certificates issued for said patents and supplementary protection certificates based upon said patents and applications for such reissues, renewals, extensions, reexamination certificates and supplementary protection certificates, the same to be held and enjoyed by said ASSIGNEE to the full ends of the terms for which said patents, utility models, registrations, confirmations, importation certificates, reexamination certificates, supplementary protection certificates, reissues, renewals and extensions may be granted, as fully and entirely as the same would have been held and enjoyed by me/us if this sale, assignment and transfer had not been made.

I/We the Inventor(s) hereby authorize ASSIGNEE and their representatives to insert in paragraph (1) of this Assignment the filing date(s) and Application Number(s) of said patent, utility model, or other application(s) when notified thereof.

I/We the Inventor(s) hereby covenant and agree that I/We will, at any time, (i) upon the request, but at the expense, of ASSIGNEE, execute and deliver all documents that may be necessary or desirable to perfect the title to the foregoing inventions and discoveries, applications, patents, utility models, registrations, confirmations, importation certificates, reissues, renewals, extensions, reexamination certificates, supplementary protection certificates, and applications within the scope of (7) and (8), in ASSIGNEE, including the execution and procurement of all further documents evidencing this sale, assignment and transfer as may be necessary or desirable for recording the same in the patent office or other intellectual property office, agency or the like of any country or region, (ii) upon the request, but at the expense, of ASSIGNEE execute all additional applications within the scope of paragraphs (1) through (6) and all applications within the scope of (7) or (8), and (iii) make all rightful oaths and declarations and do all lawful acts requisite for procuring the same or for aiding therein, without further compensation, but at the expense of ASSIGNEE .

Should any provision of this Assignment be deemed invalid or unenforceable by reason of any law, statute, regulation or judgment, existing now or in the future in any jurisdiction, such provision shall be modified in such jurisdiction so as to nearly approximate the intent of the Parties. If this cannot be done, such invalid or unenforceable provision shall be divisible and be deleted in any such jurisdiction, and all other provisions shall remain in full force and effect. The modification or deletion of any provision in one jurisdiction shall have no effect on this Assignment in any other jurisdiction.

This Assignment shall be governed by the laws of the state of Delaware.

This Assignment is effective as from the earliest priority date as stated above.

Executed this _____ day of _____, 20__.

BY _____ L.S.
Tony Fleming

On this _____ day of _____ 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

_____, Notary Public

My commission expires _____

BY _____ L.S.
Rou-Fun Kwong

On this _____ day of _____ 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

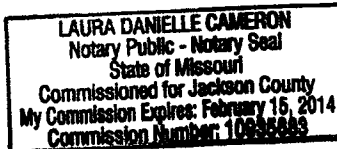
_____, Notary Public

My commission expires _____

BY  _____ L.S.
Saurabh Saha

On this 11 day of June 2012, before me, the undersigned notary public, personally appeared Saurabh Saha, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

Laura Danielle Cameron, Notary Public



My commission expires Feb 15, 2014

BY _____ L.S.
Xiaoyan Michelle Zhang

On this ____ day of _____ 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

_____, Notary Public

My commission expires _____

Executed this ____ day of _____, 20__.

Novartis Institutes for Biomedical Research Inc.

BY _____ L.S.

On this ____ day of _____ 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

_____, Notary Public

My commission expires _____

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| Xiaoyan Michelle ZHANG | citizen of United States of America | Novartis Institutes for BioMedical Research, Inc. 250 Massachusetts Avenue Cambridge, MA 02139 USA |

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I/We the Inventor(s) hereby authorize ASSIGNEE and their representatives to insert in paragraph (1) of this Assignment the filing date(s) and Application Number(s) of said patent, utility model, or other application(s) when notified thereof.

I/We the Inventor(s) hereby covenant and agree that I/We will, at any time, (i) upon the request, but at the expense, of ASSIGNEE, execute and deliver all documents that may be necessary or desirable to perfect the title to the foregoing inventions and discoveries, applications, patents, utility models, registrations, confirmations, importation certificates, reissues, renewals, extensions, reexamination certificates, supplementary protection certificates, and applications within the scope of (7) and (8), in ASSIGNEE, including the execution and procurement of all further documents evidencing this sale, assignment and transfer as may be necessary or desirable for recording the same in the patent office or other intellectual property office, agency or the like of any country or region, (ii) upon the request, but at the expense, of ASSIGNEE execute all additional applications within the scope of paragraphs (1) through (6) and all applications within the scope of (7) or (8), and (iii) make all rightful oaths and declarations and do all lawful acts requisite for procuring the same or for aiding therein, without further compensation, but at the expense of ASSIGNEE .

Should any provision of this Assignment be deemed invalid or unenforceable by reason of any law, statute, regulation or judgment, existing now or in the future in any jurisdiction, such provision shall be modified in such jurisdiction so as to nearly approximate the intent of the Parties. If this cannot be done, such invalid or unenforceable provision shall be divisible and be deleted in any such jurisdiction, and all other provisions shall remain in full force and effect. The modification or deletion of any provision in one jurisdiction shall have no effect on this Assignment in any other jurisdiction.

This Assignment shall be governed by the laws of the state of Delaware.

This Assignment is effective as from the earliest priority date as stated above.

Executed this _____ day of _____, 20__.

BY _____ L.S.
Tony Fleming

On this _____ day of _____ 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

_____, Notary Public

My commission expires _____

BY _____ L.S.
Rou-Fun Kwong

On this _____ day of _____ 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

_____, Notary Public

My commission expires _____

BY _____ L.S.
Saurabh Saha

On this _____ day of _____ 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

_____, Notary Public

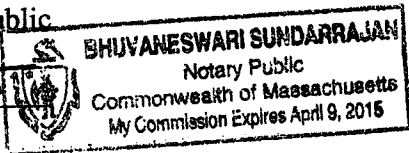
My commission expires _____

BY Xiaoyan Michelle Zhang L.S.

On this 8th day of June 2012, before me, the undersigned notary public, personally appeared XIAOYAN ZHANG, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

Bhuvanewari Sundarrajan, Notary Public

My commission expires April 09, 2015



Executed this _____ day of _____, 20__.

Novartis Institutes for Biomedical Research Inc.

BY _____ L.S.

On this _____ day of _____ 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was his or her license to be the person whose name is signed on the preceding or attached document and acknowledged to me that he or she signed it voluntarily for its stated purpose.

_____, Notary Public

My commission expires _____