<table>
<thead>
<tr>
<th></th>
<th>For receiving Office use only</th>
<th>PCT/US15/54775</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>International Application No.</td>
<td></td>
</tr>
<tr>
<td>0-2</td>
<td>International Filing Date</td>
<td>08 OCTOBER 2015 (08.10.15)</td>
</tr>
<tr>
<td>0-3</td>
<td>Name of receiving Office and &quot;PCT International Application&quot;</td>
<td>PCT INTERNATIONAL APPLICATION RO/US</td>
</tr>
<tr>
<td>0-4</td>
<td>Form PCT/RO/101 PCT Request</td>
<td></td>
</tr>
<tr>
<td>0-4-1</td>
<td>Prepared Using</td>
<td>PCT-SAFE [EFS-Web mode] Version 3.51.069.245 MT/FOP 20150701/0.20.5.22</td>
</tr>
<tr>
<td>0-5</td>
<td>Petition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty</td>
<td></td>
</tr>
<tr>
<td>0-6</td>
<td>Receiving Office (specified by the applicant)</td>
<td>United States Patent and Trademark Office (USPTO) (RO/US)</td>
</tr>
<tr>
<td>0-7</td>
<td>Applicant's or agent's file reference</td>
<td>56489WOPCT02</td>
</tr>
<tr>
<td>1</td>
<td>Title of Invention</td>
<td>COMPOSITIONS AND METHODS OF USE FOR AUGMENTED IMMUNE RESPONSE AND CANCER THERAPY</td>
</tr>
</tbody>
</table>
II
II-1 Applicant
   This person is
   Applicant only
   AP: (BW GH GM KE LR LS MW MZ NA RW SD SL
   ST SZ TZ UG ZM ZW); EA: (AM AZ BY KG KZ
   RU TJ TM); EP: (AL AT BE BG CH&LI CY CZ
   DE DK EE ES FI FR GB GR HR HU IE IS IT
   LT LU LV MC MK MT NL NO PL PT RO RS SE
   SI SK SM TR); OA: (BF BJ CF CG CI CM GA
   GN GQ GW KM ML MR NE SN TD TG); AE AG AL
   AM AO AT AU AZ BA BB BG BH BN BR BW BY
   BZ CA CH&LI CL CN CO CR CU CZ DE DK DM
   DO DZ EC EE EG ES FI GB GD GE GH GM GT
   HN HR HU ID IL IN IR IS JP KE KG KN KP
   KR KZ LA LC LK LR LS LU LY MA MD ME MG
   MK MN MW MX MY MZ NA NG NI NO NZ OM PA
   PE PG PH PL PT QA RO RS RU RW SA SC SD
   SE SG SK SL SM ST SV SY TH TJ TM TN TR
   TT TZ UA UG UZ VC VN ZA ZM ZW

II-2 Applicant for

II-3 Name
   NOVARTIS AG
   Lichtstrasse 35
   4056 Basel
   Switzerland

II-4 Address
   CH
   858-812-1766
   41 61 322 75 32
   pip_inbox.phchbs@novartis.com
   exclusively in electronic form (no paper
   notifications will be sent)

II-5 State of nationality
   CH

II-6 State of residence

II-7 Telephone No.

II-8 Facsimile No.

II-9 e-mail

II-10 E-mail authorization
   The receiving Office, the International
   Searching Authority, the International
   Bureau and the International Preliminary
   Examining Authority are authorized to
   use this e-mail address, if the Office or
   Authority so wishes, to send notifications
   issued in respect of this international
   application:

III-1 Applicant and/or inventor
III-1-1 This person is
   Applicant and inventor
   US
   BROGDON, Jennifer
   Novartis Institute for Biomedical
   Research Inc.
   250 Massachusetts Avenue
   Cambridge, Massachusetts 02139
   United States of America

III-1-2 Applicant for

III-1-3 Name (LAST, First)

III-1-4 Address

III-1-5

III-1-6 State of nationality
   US

III-1-7 State of residence
   US
### III-2  Applicant and/or inventor
- **This person is:** Applicant and inventor
- **Address:**
  Novartis Institutes for Biomedical Research Inc.
  250 Massachusetts Avenue
  Cambridge, Massachusetts 02139
  United States of America
- **State of nationality:** IT
- **State of residence:** US

### III-3  Applicant and/or inventor
- **This person is:** Applicant and inventor
- **Address:**
  Novartis Institutes for Biomedical Research Inc.
  250 Massachusetts Avenue
  Cambridge, Massachusetts 02139
  United States of America
- **State of nationality:** US
- **State of residence:** US

### III-4  Applicant and/or inventor
- **This person is:** Applicant and inventor
- **Address:**
  Novartis Institute for Functional Genomics, Inc., dba Genomics Institute of the Novartis Research Foundation
  10675 John Jay Hopkins Drive
  San Diego, California 92121
  United States of America
- **State of nationality:** GB
- **State of residence:** US
### Applicant and inventor

**US**

**WANG, Fei**

Novartis Institute for Functional Genomics, Inc., dba Genomics Institute of the Novartis Research Foundation
10675 John Jay Hopkins Drive
San Diego, California 92121
United States of America

**US**

### Agent

**Agent**

**SCHRAY, Kerri Pollard**

c/o Novartis Pharmaceuticals Corporation
IP Services Mail Data
One Health Plaza 101/2
East Hanover, New Jersey 07936
United States of America

858-812-1766

41 61 322 75 32

pip_inbox.phchbs@novartis.com
exclusively in electronic form (no paper notifications will be sent)

### Designations

**additional agent(s) with same address as first named agent**

**RAYMOND, Daniel E. (53504); TONGCO WU, Emily (46473); SMITH, Chihang Amy (42931)**
### VI-1  Priority claim of earlier national application

<table>
<thead>
<tr>
<th>Filing date</th>
<th>Number</th>
<th>Country or Member of WTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>08 October 2014</td>
<td>62/061,644</td>
<td>US</td>
</tr>
</tbody>
</table>

### VI-2  Priority claim of earlier national application

<table>
<thead>
<tr>
<th>Filing date</th>
<th>Number</th>
<th>Country or Member of WTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>29 July 2015</td>
<td>62/198,673</td>
<td>US</td>
</tr>
</tbody>
</table>

### VI-3  Priority claim of earlier national application

<table>
<thead>
<tr>
<th>Filing date</th>
<th>Number</th>
<th>Country or Member of WTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 September 2015</td>
<td>62/220,764</td>
<td>US</td>
</tr>
</tbody>
</table>

### VI-4  Priority document request

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s):

- VI-1
- VI-2
- VI-3

### VI-5  Incorporation by reference:

where an element of the international application referred to in Article 11(1)(iii)(d) or (e) or a part of the description, claims or drawings referred to in Rule 20.5(a) is not otherwise contained in this international application but is completely contained in an earlier application whose priority is claimed on the date on which one or more elements referred to in Article 11(1)(iii) were first received by the receiving Office, that element or part is, subject to confirmation under Rule 20.6, incorporated by reference in this international application for the purposes of Rule 20.6.

### VII-1  International Searching Authority Chosen

| European Patent Office (EPO) (ISA/EP) |

<table>
<thead>
<tr>
<th>VIII</th>
<th>Declarations</th>
<th>Number of declarations</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIII-1</td>
<td>Declaration as to the identity of the inventor</td>
<td>-</td>
</tr>
<tr>
<td>VIII-2</td>
<td>Declaration as to the applicant’s entitlement, as at the international filing date, to apply for and be granted a patent</td>
<td>-</td>
</tr>
<tr>
<td>VIII-3</td>
<td>Declaration as to the applicant’s entitlement, as at the international filing date, to claim the priority of the earlier application</td>
<td>-</td>
</tr>
<tr>
<td>VIII-4</td>
<td>Declaration of inventorship (only for the purposes of the designation of the United States of America)</td>
<td>-</td>
</tr>
<tr>
<td>VIII-5</td>
<td>Declaration as to non-prejudicial disclosures or exceptions to lack of novelty</td>
<td>-</td>
</tr>
</tbody>
</table>
### IX. Check list

<table>
<thead>
<tr>
<th>IX</th>
<th>Number of sheets</th>
<th>Electronic file(s) attached</th>
</tr>
</thead>
<tbody>
<tr>
<td>IX-1</td>
<td>Request (including declaration sheets)</td>
<td>6</td>
</tr>
<tr>
<td>IX-2</td>
<td>Description</td>
<td>126</td>
</tr>
<tr>
<td>IX-3</td>
<td>Claims</td>
<td>10</td>
</tr>
<tr>
<td>IX-4</td>
<td>Abstract</td>
<td>1</td>
</tr>
<tr>
<td>IX-5</td>
<td>Drawings</td>
<td>11</td>
</tr>
<tr>
<td>IX-6a</td>
<td>Sequence listing part of the description (also to be used for the purposes of international search)</td>
<td>–</td>
</tr>
<tr>
<td>IX-7</td>
<td>TOTAL</td>
<td>154</td>
</tr>
</tbody>
</table>

### IX.8. Accompanying Items

<table>
<thead>
<tr>
<th>IX-8</th>
<th>Paper document(s) attached</th>
<th>Electronic file(s) attached</th>
</tr>
</thead>
<tbody>
<tr>
<td>IX-20</td>
<td>Figure of the drawings which should accompany the abstract</td>
<td>7</td>
</tr>
</tbody>
</table>

### X. Language of filing of the international application

- **English**

### Signature of applicant, agent or common representative

- **/Kerri Pollard Schray, Reg. No. 47066/**

### Name (LAST, First)

- **SCHRAY, Kerri Pollard**

### FOR RECEIVING OFFICE USE ONLY

<table>
<thead>
<tr>
<th>10-1</th>
<th>Date of actual receipt of the purported international application</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>08 OCTOBER 2015 (08.10.15)</td>
</tr>
</tbody>
</table>

### FOR INTERNATIONAL BUREAU USE ONLY

<table>
<thead>
<tr>
<th>11-1</th>
<th>Date of receipt of the record copy by the International Bureau</th>
</tr>
</thead>
</table>

### Drawings:

- 10-2-1 Received
- 10-2-2 Not received

### Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application

### Date of timely receipt of the required corrections under PCT Article 11(2)

### International Searching Authority

- **ISA/EP**

### Transmittal of search copy delayed until search fee is paid