Abstract:

Methods of generating antibodies that immunospecifically bind RSV F protein also are provided.

Declarations under Rule 41.7:

— as to applicant's entitlement to apply for and be granted a patent (Rule 41.7(i))
— as to the applicant's entitlement to claim the priority of the earlier application (Rule 41.7(ii))

Published:

— with international search report (Art. 21(3))
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
— with sequence listing part of description (Rule 5.2(a))

Date of publication of the international search report:

19 April 2012

Title: ANTI-HUMAN RESPIRATORY SYNCTIAL VIRUS (RSV) ANTIBODIES AND METHODS OF USE

Abstract: Provided herein are antibodies or antigen-binding fragments thereof that immunospecifically bind to the fusion (F) protein of Respiratory Syncytial Virus (RSV). Also provided are methods for prevention, treatment and diagnosis of viral infection and/or the treatment of one or more symptoms of RSV-mediated disease. Methods of generating antibodies that immunospecifically bind RSV F protein also are provided.
## INTERNATIONAL SEARCH REPORT

**International application No**

PCT/US2011/043463

### A. CLASSIFICATION OF SUBJECT MATTER

INV. C07K16/10

ADD. A61P31/12

According to International Patent Classification (IPC) or to both national classification and IPC

### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Y pages 36,41-3</td>
<td>5,6,9-99</td>
</tr>
<tr>
<td>X</td>
<td>WO 2008/106980 A2 (SYMPH0GEN AS [DK]); LANTT0 JOHAN [SE]; NI ELSEN HENRI ETTE SCHJ0ENNING [D] 12 September 2008 (2008-09-12)</td>
<td>1-4,7,8,38-43</td>
</tr>
<tr>
<td>Y</td>
<td>example es 3,4; tabl es 6, 11A, 11B pages 54-5</td>
<td>5,6,9-99</td>
</tr>
</tbody>
</table>

**Further documents are listed in the continuation of Box C.**

**See patent family annex.**

* Special categories of cited documents:

**A** document defining the general state of the art which is not considered to be of particular relevance

**B** earlier document but published on or after the international filing date

**C** document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

**D** document referring to oral disclosure, use, exhibition or other means

**E** document published prior to the international filing date but later than the priority date claimed

**I** later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

**X** document of particular relevance; the claimed invention cannot be considered a novelty or cannot be considered to involve an inventive step when the document is taken alone

**Y** document of particular relevance; the claimed invention cannot be considered a novelty or cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

**S** document member of the same patent family

### Date of the actual completion of the international search

15 February 2012

### Date of mailing of the international search report

23/02/2012

**Name and mailing address of the ISA/authorized officer**

European Patent Office, P.B. 5818 Patentlaan 2
N.L. 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016

Domingues, Helena
<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>HUANG KELLY ET AL: &quot;Respiratory syncyti al Vi rus-neutral izing monoclonal anti bodies motavi zumab and pal ivizumab inhi bit fusi on&quot;, JOURNAL OF VI ROLOGY, AMERICAN SOCIETY FOR MICROBIOLOGY, US, vol. 84, no. 16, 2 June 2010 (2010-06-02), pages 8132-8140, XP009139705, ISSN: 1098-5514 the whole document</td>
<td>1-99</td>
</tr>
<tr>
<td>Y,P</td>
<td>WW 2011/020079 AI (CALMUNE CORP [US]; WILIAMSON ROBERT ANTHONY [US]; WADIA JEHANGIR R [US]) 17 February 2011 (2011-02-17) pages 5, 6 pages 81,82 page 142; examples 9, 11</td>
<td>1-99</td>
</tr>
</tbody>
</table>
This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
   because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
   because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
   because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

   l-26(completely) ; 27-99 (partially)

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos. :

Remark on Protest

The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

No protest accompanied the payment of additional search fees.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 5, 6, ll-15 (completely) ; 1-4, 7-10, 38-99 (partially)

Concerns aspects related to an antibody designated as 30D8 which has a VH SEQ ID NO: 396 and a VL SEQ ID NO: 395 and to sequences derived thereof.

---

2. claims: 16-26 (completely) ; 1-4, 7-10, 38-99 (partially)

Concerns aspects related to an antibody designated as 17C9 which has a VH SEQ ID NO: 454 and a VL SEQ ID NO: 455 and to sequences derived thereof.

---

3. claims: 1-4, 27-99 (al 1 partially)

Concerns aspects related to an antibody designated as 105E5 which has a VH SEQ ID NO: 398 and a VL SEQ ID NO: 397 and to sequences derived thereof.

---

4. claims: 1-4, 27-99 (al partially)

Concerns aspects related to an antibody designated as 38F10 which has a VH SEQ ID NO: 400 and a VL SEQ ID NO: 399 and to sequences derived thereof.

---

5. claims: 1-4, 27-99 (al partially)

Concerns aspects related to an antibody designated as 14G3 which has a VH SEQ ID NO: 402 and a VL SEQ ID NO: 401 and to sequences derived thereof.

---

6. claims: 1-4, 27-99 (al partially)

Concerns aspects related to an antibody designated as 90D3 which has a VH SEQ ID NO: 404 and a VL SEQ ID NO: 403 and to sequences derived thereof.

---

7. claims: 1-4, 27-99 (al partially)

Concerns aspects related to an antibody designated as 56E11 which has a VH SEQ ID NO: 452 and a VL SEQ ID NO: 453 and to sequences derived thereof.

---

8. claims: 1-4, 27-99 (al partially)

Concerns aspects related to an antibody designated as 69F6...
which has a VH SEQ ID NO: 456 and a VL SEQ ID NO: 457 and to sequences derived thereof.
---
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CA 2678628 A1</td>
<td>12-09-2008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CN 101679513 A</td>
<td>24-03-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EP 2134747 A2</td>
<td>23-12-2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP 2010534057 A</td>
<td>04-11-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KR 20090127341 A</td>
<td>10-12-2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RU 2009136677 A</td>
<td>20-04-2011</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US 2008226630 A1</td>
<td>18-09-2008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WO 2008106980 A2</td>
<td>12-09-2008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ZA 200905990 A</td>
<td>26-05-2010</td>
</tr>
<tr>
<td>US 5824307 A</td>
<td>20-10-1998</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WO 2011020079 A1</td>
<td>17-02-2011</td>
</tr>
</tbody>
</table>