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61/779,888 13 March 2013 (13.03.2013) US
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(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, 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, LT, 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, US, UZ, VC, VN, ZA, ZM, ZW.

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**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))

(88) **Date of publication of the international search report:**  
4 December 2014



WO 2014/141125 A3

(54) **Title:** INFLUENZA B VIRUS REASSORTMENT

(57) **Abstract:** New influenza donor strains for the production of reassortant influenza B viruses are provided.

# INTERNATIONAL SEARCH REPORT

International application No <b>PCT/IB2014/059729</b>
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**A. CLASSIFICATION OF SUBJECT MATTER**  
**INV. A61K39/12**  
**ADD.**

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)  
**A61K C12N**

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**EPO-Internal, EMBL, BIOSIS, CHEM ABS Data, EMBASE, WPI Data**

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>HOFFMANN E ET AL: "Rescue of influenza B virus from eight plasmids",                      PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, NATIONAL ACADEMY OF SCIENCES, US,                      vol. 99, no. 17,                      20 August 2002 (2002-08-20), pages                      11411-11416, XP002973258,                      ISSN: 0027-8424, DOI:                      10.1073/PNAS.172393399                      abstract                      page 11414, right-hand column, paragraph 2                      - page 11415, right-hand column, paragraph 1</p> <p style="text-align: center;">-----                      -/--</p>	<p>1,5-7,                      13-18,                      20-42</p>

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
- "E" earlier application or patent but published on or after the international filing date
- "L" 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)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" 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 novel 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 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
- "&" document member of the same patent family

Date of the actual completion of the international search

**18 June 2014**

Date of mailing of the international search report

**19/09/2014**

Name and mailing address of the ISA/

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Authorized officer

**Mandl, Birgit**

## INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2014/059729

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ONODERA SHIROH ET AL: "Development of the influenza B reassortant NYMC BX-35 for use as seed virus for influenza B vaccine production", INFLUENZA AND OTHER RESPIRATORY VIRUSES, vol. 5, no. Suppl. 1, May 2011 (2011-05), pages 392-394, XP007922733, page 392, left-hand column tables 1,2	1,5-7, 13-18, 20-42
A	----- WO 2006/098901 A2 (MEDIMMUNE VACCINES INC) 21 September 2006 (2006-09-21)  paragraphs [0017], [0056] figures 1,2a claims 47-58,69-73	1,5-7, 13-18, 20-42
A	----- WO 2005/115448 A2 (MEDIMMUNE VACCINES INC) 8 December 2005 (2005-12-08)  example 7	1,5-7, 13-18, 20-42
A	----- P. A. ROTA ET AL: "Antigenic and Genetic Characterization of the Haemagglutinins of Recent Cocirculating Strains of Influenza B Virus", JOURNAL OF GENERAL VIROLOGY, vol. 73, no. 10, 1 October 1992 (1992-10-01), pages 2737-2742, XP055123874, ISSN: 0022-1317, DOI: 10.1099/0022-1317-73-10-2737 cited in the application the whole document	1,5-7, 13-18, 20-42
A	----- WO 02/24876 A2 (POLYMUN SCIENT IMMUNBIO FORSCH) 28 March 2002 (2002-03-28)  table 12; sequence 23	1,5-7, 13-18, 20-42
A	----- H.-P. TSAI ET AL: "Increasing Appearance of Reassortant Influenza B Virus in Taiwan from 2002 to 2005", JOURNAL OF CLINICAL MICROBIOLOGY, vol. 44, no. 8, 1 August 2006 (2006-08-01) , pages 2705-2713, XP055052616, ISSN: 0095-1137, DOI: 10.1128/JCM.02694-05 the whole document	1,5-7, 13-18, 20-42

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2014/059729

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

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).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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.:
  
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.:

1(completely); 5-7, 13-18, 20-42(partially)

### 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.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1(completely); 5-7, 13-18, 20-42(partially)

Subject-matter relating to a method of preparing a reassortant influenza B virus based on the HA segment from a first influenza B virus and the NP and/or PB2 segment from a second influenza B virus which is a B/Victoria/2/87-like strain.

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2. claims: 2-4(completely); 5-7, 14-18, 20-42(partially)

Subject-matter relating to a method of preparing a reassortant influenza B virus based on the HA segment from a first influenza B virus and the NP segment from a second influenza B virus which is not B/Lee/40 or B/Ann Arbor/1/66 or B/Panama/45/90.

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3. claims: 8-10(completely); 12-18, 20-42(partially)

Subject-matter relating to a method of preparing a reassortant influenza B virus based on the HA segment from a B/Yamagata/16/88-like strain and at least one backbone segment from a B/Victoria/2/87-like strain.

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4. claims: 11(completely); 12-18, 20-42(partially)

Subject-matter relating to a method of preparing a reassortant influenza B virus based on viral segments from a B/Victoria/2/87-like strain and a B/Yamagata/16/88-like strain having the ratio of 1:7, 2:6, 3:5, 4:4, 5:3, 6:2 or 7:1.

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5. claims: 19(completely); 20-42(partially)

Subject-matter relating to a method of preparing a reassortant influenza B virus based on viral segments PA, PB1, PB2, NP, NS and M of either B/Brisbane/60/08 alone (a) or in combination with segments of B/Panama/45/90 (b-k).

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2014/059729

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		KR 20080043891 A	19-05-2008
		US 2004137013 A1	15-07-2004
		WO 0224876 A2	28-03-2002
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