

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference RBT15047PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/IB2015/053365	International filing date (<i>day/month/year</i>) 8 May 2015 (08-05-2015)	(Earliest) Priority Date (<i>day/month/year</i>) 8 May 2014 (08-05-2014)
Applicant REDVAX GMBH		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.

☒

It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒

the international application in the language in which it was filed

☐

a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐

This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6**bis**(a)).

c. ☒

With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐

Certain claims were found unsearchable (See Box No. II)

3. ☐

Unity of invention is lacking (see Box No III)

4. With regard to the **title**,

☒

the text is approved as submitted by the applicant

☐

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒

the text is approved as submitted by the applicant

☐

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 9

☒

as suggested by the applicant

☐

as selected by this Authority, because the applicant failed to suggest a figure

☐

as selected by this Authority, because this figure better characterizes the invention

b. ☐

none of the figures is to be published with the abstract

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Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.c of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of a sequence listing:
- a. ☒ forming part of the international application as filed:
- ☐ in the form of an Annex C/ST.25 text file.
- ☐ on paper or in the form of an image file.
- b. ☐ furnished together with the international application under PCT Rule 13~~ter~~.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
- c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
- ☐ in the form of an Annex C/ST.25 text file (Rule 13~~ter~~.1(a)).
- ☐ on paper or in the form of an image file (Rule 13~~ter~~.1(b) and Administrative Instructions, Section 713).
2. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

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A. CLASSIFICATION OF SUBJECT MATTER
INV. A61K39/245 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)
C12N A61K

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, BIOSIS, 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.
X	D. C. FREED ET AL: "Pentameric complex of viral glycoprotein H is the primary target for potent neutralization by a human cytomegalovirus vaccine", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, vol. 110, no. 51, 2 December 2013 (2013-12-02), pages E4997-E5005, XP055137188, ISSN: 0027-8424, DOI: 10.1073/pnas.1316517110 The whole document, in particular, materials and methods 'Viruses', p.E5003, col.1 3 ----- -/--	1-42



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

30 June 2015

Date of mailing of the international search report

10/07/2015

Name and mailing address of the ISA/

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International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	F. WUSSOW ET AL: "A Vaccine Based on the Rhesus Cytomegalovirus UL128 Complex Induces Broadly Neutralizing Antibodies in Rhesus Macaques", JOURNAL OF VIROLOGY, vol. 87, no. 3, 14 November 2012 (2012-11-14), pages 1322-1332, XP055137191, ISSN: 0022-538X, DOI: 10.1128/JVI.01669-12 The whole document, in particular, p.1326, col.1, 2; Fig.5, Discussion 1 -----	1-42
Y	WO 2012/051211 A2 (NOVARTIS AG [CH]; LILJA ANDERS [US]; LOOMIS REBECCA [US]; FRANTI MICHA) 19 April 2012 (2012-04-19) The whole document, in particular Example 6, Fig.19 -----	1-42
Y	WO 2014/005959 A1 (NOVARTIS AG [CH]) 9 January 2014 (2014-01-09) The whole document, in particular, Examples 1,2 and 9 -----	1-42
Y	WO 2012/106377 A2 (UNIV PENNSYLVANIA [US]; WEINER DAVID B [US]; SHEDLOCK DEVON J [US]) 9 August 2012 (2012-08-09) The whole document, in particular, Example 1, p.67, 2 -----	1-42
Y	TANG X C ET AL: "Baculovirus-Produced Influenza Virus-like Particles in Mammalian Cells Protect Mice from Lethal Influenza Challenge", VIRAL IMMUNOLOGY, MARY ANN LIEBERT, INC., NEW YORK, US, vol. 24, no. 4, 10 August 2011 (2011-08-10), pages 311-319, XP002711212, ISSN: 0882-8245, DOI: 10.1089/VIM.2011.0016 the whole document -----	1-42
A	TONG-MING FU ET AL: "Progress on pursuit of human cytomegalovirus vaccines for prevention of congenital infection and disease", VACCINE, vol. 32, no. 22, 1 May 2014 (2014-05-01), pages 2525-2533, XP055137184, ISSN: 0264-410X, DOI: 10.1016/j.vaccine.2014.03.057 The whole document, in particular, Table 1 ----- -/--	1-42

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	MACAGNO ANNALISA ET AL: "Isolation of Human Monoclonal Antibodies That Potently Neutralize Human Cytomegalovirus Infection by Targeting Different Epitopes on the gH/gL/UL128-131A Complex", JOURNAL OF VIROLOGY, THE AMERICAN SOCIETY FOR MICROBIOLOGY, US, vol. 84, no. 2, 15 January 2010 (2010-01-15), pages 1005-1013, XP009129527, ISSN: 0022-538X, DOI: 10.1128/JVI.01809-09 the whole document -----	1-42
A	Biotechnet: "The Vaccine-Factory in the Box - from vision to reality", 11 July 2013 (2013-07-11), XP055137200, Swissinnovate Retrieved from the Internet: URL: http://www.swissinnovate.org/content.cfm?nav=4&content=11&command=details&id=20527 [retrieved on 2014-08-28] 4 describes rePAX technology for manufacturing reVLP -----	1-42
A	RYCKMAN BRENT J ET AL: "Characterization of the human cytomegalovirus gH/gL/UL128-131 complex that mediates entry into epithelial and endothelial cells", JOURNAL OF VIROLOGY, AMERICAN SOCIETY FOR MICROBIOLOGY, US, vol. 82, no. 1, 1 January 2008 (2008-01-01), pages 60-70, XP002519851, ISSN: 1098-5514, DOI: 10.1128/JVI.01910-07 [retrieved on 2007-10-17] the whole document -----	1-42
T	WO 2014/068001 A1 (REDBIOTEC AG [CH]) 8 May 2014 (2014-05-08) the whole document -----	

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Information on patent family members

International application No

PCT/IB2015/053365

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012051211 A2	19-04-2012	AU 2011316707 A1 CA 2814386 A1 CL 2013000984 A1 CN 103269713 A EP 2627351 A2 JP 2013544504 A KR 20130117781 A RU 2013121582 A US 2014030292 A1 WO 2012051211 A2	09-05-2013 19-04-2012 11-10-2013 28-08-2013 21-08-2013 19-12-2013 28-10-2013 20-11-2014 30-01-2014 19-04-2012
WO 2014005959 A1	09-01-2014	AU 2013286093 A1 CA 2878344 A1 EP 2869843 A1 GB 2513768 A IL 236261 A KR 20150031322 A WO 2014005959 A1	12-02-2015 09-01-2014 13-05-2015 05-11-2014 26-02-2015 23-03-2015 09-01-2014
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WO 2014068001 A1	08-05-2014	AU 2013340820 A1 CA 2885145 A1 WO 2014068001 A1	19-03-2015 08-05-2014 08-05-2014