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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, BR, BW, BY, BZ, CA, CH, 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, IS, JP, KE, KG, KM, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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Declarations under Rule 4.17:
- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

Published:
- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
25 June 2009

(54) Title: VACCINE COMPRISING STREPTOCOCCUS PNEUMONIAE CAPSULAR POLYSACCHARIDE CONJUGATES

(57) Abstract: The present invention is in the field of pneumococcal capsular saccharide conjugate vaccines. Specifically, an immunogenic composition for infants is provided comprising a multivalent Streptococcus pneumoniae vaccine comprising 2 or more capsular saccharide conjugates from different serotypes, wherein the composition comprises a serotype 22F saccharide conjugate. Such a vaccine may be used in infant populations to reduce the incidence of elderly pneumococcal disease such as exacerbations of COPD and/or IPD.

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A. CLASSIFICATION OF SUBJECT MATTER
INV. A61K39/09 A61P31/04

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

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 practical, search terms used)
EPO-Internal, BIOSIS, 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	WO 00/56360 A (SMITHKLINE BEECHAM BIOLOG [BE]; CAPIAU CARINE [BE]; DESCHAMPS MARGUERI) 28 September 2000 (2000-09-28)	1-129
Y	page 11, line 20 - page 12, line 15 page 14, line 4 - page 16, line 16 page 18, lines 11-18 page 24, lines 18-22 page 18, lines 5-16 page 27, lines 4-18	131-136
X	WO 02/00249 A (SMITHKLINE BEECHAM BIOLOG [BE]; BOUTRIAU DOMINIQUE [BE]; CAPIAU CARINE) 3 January 2002 (2002-01-03)	1-129
Y	page 2, line 30 - page 3, line 14 page 4, line 30 - page 5, line 9 page 9, line 10 - line 31	131-136

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[X] Further documents are listed in the continuation of Box C. [X] 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

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"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

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24 April 2009	04/05/2009

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Noë, Veerle

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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.
X	WO 03/051392 A (GLAXOSMITHKLINE BIOLOG SA [BE]; LAFERRIERE CRAIG ANTHONY JOSEP [CA]; P) 26 June 2003 (2003-06-26)	1-129
Y	page 2, lines 5-22 page 4, line 25 - page 6, line 7 page 7, lines 8-16 page 12, line 19 - page 13, line 6 page 13, line 26 - page 14, line 5 claims 1,5	131-136
X	WO 2007/000322 A (GLAXOSMITHKLINE BIOLOG SA [BE]; BIEMANS RALPH LEON [BE]; BOUTRIAU DOMI) 4 January 2007 (2007-01-04)	1-129
Y	page 1, lines 3-6 page 3, paragraph 3 page 5, paragraph 2 - page 6, paragraph 1 page 6, last paragraph page 11, last paragraph page 15, lines 15-33	131-136
Y	LEXAU CATHERINE A ET AL: "CHANGING EPIDEMIOLOGY OF INVASIVE PNEUMOCOCCAL DISEASE AMONG OLDER ADULTS IN THE ERA OF PEDIATRIC PNEUMOCOCCAL CONJUGATE VACCINE" JAMA THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, AMERICAN MEDICAL ASSOCIATION, US, vol. 294, no. 16, 26 October 2005 (2005-10-26), pages 2043-2051, XP009085570 ISSN: 0098-7484 page 2049, column 2, last paragraph - page 2050, column 2, last paragraph	131-136
A	NURKKA ANU ET AL: "IMMUNOGENICITY AND SAFETY OF THE ELEVEN VALENT PNEUMOCOCCAL POLYSACCHARIDE-PROTEIN D CONJUGATE VACCINE IN INFANTS" PEDIATRIC INFECTIOUS DISEASE JOURNAL, WILLIAMS & WILKINS, BALTIMORE, MD, US, vol. 23, no. 11, 1 November 2004 (2004-11-01), pages 1008-1014, XP009085633 ISSN: 0891-3668 cited in the application the whole document	
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INTERNATIONAL SEARCH REPORT

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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 allsearchable 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 reportcovers 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.:

see annex

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: 1-129,131-136

   Immunogenic composition comprising 2 or more capsular saccharide conjugates from different serotypes, wherein the composition comprises a serotype 22F saccharide conjugate and 2-9 of the capsular saccharide conjugates contain protein D as carrier protein.

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2. claim: 130

   Immunogenic composition comprising at least four Streptococcus pneumoniae capsular saccharide conjugates wherein at least one saccharide is conjugated to PhtD or fusion protein thereof.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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