

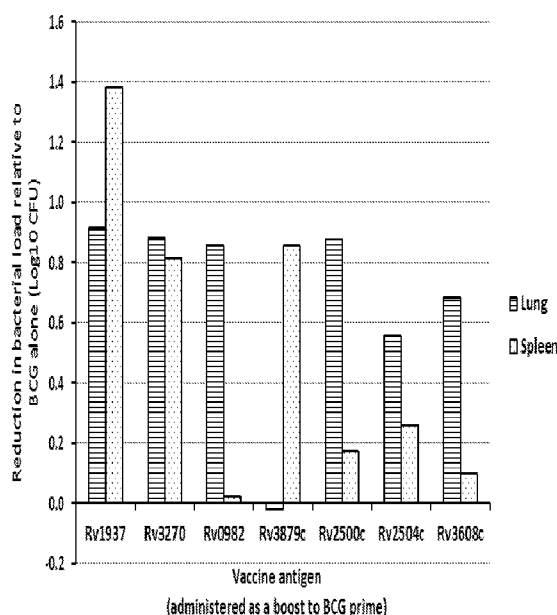


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- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, 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, 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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[Continued on next page]

(54) Title: MYCOBACTERIAL ANTIGEN COMPOSITION

Figure 3



(57) **Abstract:** The present invention provides an antigenic composition for use as a mycobacterial vaccine, said composition comprising (i) a first mycobacterial antigenic polypeptide, wherein said first mycobacterial antigenic polypeptide comprises a polypeptide sequence having at least 70% amino acid sequence identity to the amino acid sequence of SEQ ID NO: 6, 12, 2, 18, 8, 10, 6, 4, or a fragment thereof having at least 50 consecutive amino acids thereof; or (ii) a first mycobacterial polynucleotide, wherein said first mycobacterial polynucleotide comprises a polynucleotide sequence encoding said first mycobacterial antigenic polypeptide, or 10 wherein said first mycobacterial polynucleotide comprises a polynucleotide sequence selected from SEQ ID NO: 5, 11, 1, 17, 7, 9, 15, 3.

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- *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))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2015/050100

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61K39/04 G01N33/569
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 G01N

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, WPI Data, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/077183 A2 (ELITRA PHARMACEUTICALS INC [US]; WANG LIANGSU [US]; ZAMUDIO CARLOS [US] 3 October 2002 (2002-10-03)	1,2,4,5
Y	page 1528, line 20 - page 1529, line 5; claims 23, 25; sequences 26552, 28441, 62736, 64625 -& DATABASE Geneseq [Online] 19 June 2003 (2003-06-19), "Protein encoded by Prokaryotic essential gene #22228.", XP002739833, retrieved from EBI accession no. GSP:ABU36701 Database accession no. ABU36701 sequence -/-	3,6-12



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)

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"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

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Date of mailing of the international search report

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Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2015/050100

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	-& DATABASE Geneseq [Online] 19 June 2003 (2003-06-19), "Prokaryotic essential gene #22228.", XP002739861, retrieved from EBI accession no. GSN:ACA40571 Database accession no. ACA40571 sequence -----	
Y	EP 2 196 473 A1 (HEALTH PROT AGENCY [GB]) 16 June 2010 (2010-06-16) paragraphs [0001], [0027], [0028], [0102], [0104], [0122], [0124], [0154], [0158] - [0162], [0239]; claims 1-14 -----	3,6-12
A	WO 2005/090988 A2 (ISIS INNOVATION [GB]; LALVANI AJIT [GB]) 29 September 2005 (2005-09-29) page 2, line 14 - page 3, line 7; sequence 18 page 4, line 6 - page 6, line 2 claims 1-5 -----	1-12
A	WO 2014/009438 A2 (TRANSGENE SA [FR]) 16 January 2014 (2014-01-16) page 5, line 18 - page 7, line 2 page 17, lines 9-16 page 29, line 6 - page 31, line 11 page 43, line 30 - page 45, line 14 page 48, lines 16-25 -----	1-12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2015/050100

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.:

1-12(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: 1-12(partially)

1. An antigenic composition comprising either (i) a first mycobacterial antigenic polypeptide, wherein said first mycobacterial antigenic polypeptide comprises a polypeptide sequence having at least 70% amino acid sequence identity to the amino acid sequence of SEQ ID NO: 6, or a fragment thereof having at least 50 consecutive amino acids thereof; or (ii) a first mycobacterial polynucleotide, wherein said first mycobacterial polynucleotide comprises a polynucleotide sequence encoding said first mycobacterial antigenic polypeptide, or wherein said first mycobacterial polynucleotide comprises a polynucleotide sequence selected from SEQ ID NO: 5, antigenic compositions comprising additional mycobacterial polypeptides, vectors, cells, methods of production, in vitro diagnostic methods and a method of treatment.

2. claims: 1-12(partially)

As invention 1 for SEQ ID NOs. 12 and 11.

3. claims: 1-12(partially)

As invention 1 for SEQ ID NOs. 2 and 1.

4. claims: 1-12(partially)

As invention 1 for SEQ ID NOs. 18 and 17.

5. claims: 1-12(partially)

As invention 1 for SEQ ID NOs. 8 and 7.

6. claims: 1-12(partially)

As invention 1 for SEQ ID NOs. 10 and 9.

7. claims: 1-12(partially)

As invention 1 for SEQ ID NOs. 16 and 15.

8. claims: 1-12(partially)

As invention 1 for SEQ ID NOs. 4 and 3.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2015/050100

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