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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.
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(54) Title: NUCLEOTIDE SEQUENCES SPECIFIC TO FRANCISELLA TULARENSIS AND METHODS FOR THE DETECTION OF FRANCISELLA TULARENSIS

(57) Abstract: Described herein is the identification of nucleotide sequences specific to *Francisella tularensis* that serves as a marker or signature for identification of this bacterium. In addition, forward and reverse primers and hybridization probes derived from these nucleotide sequences that are used in nucleotide detection methods to detect the presence of the bacterium are disclosed.



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INTERNATIONAL SEARCH REPORT

Int. Application No

PCT/US 03/24218

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12Q1/68

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)

IPC 7 C12Q

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, MEDLINE, PAJ, 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 97 11195 A (SECR. OF STATE FOR DEFENCE) 27 March 1997 (1997-03-27)	2
A	abstract; claims 1-5 ---	1,3-7
X	PRIOR R.G. ET AL: "Preliminary analysis and annotation of the partial genome sequence of Francisella tularensis strain Schu 4" JOURNAL OF APPLIED MICROBIOLOGY, OXFORD, vol. 91, no. 4, October 2001 (2001-10), pages 614-620, XP002255307 ISSN: 1364-5072	2
A	the whole document --- -/-	1,3-7



Further documents are listed in the continuation of box C.



Patent family members are listed in 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 document 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.

G document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 03/24218

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KARLSSON J ET AL: "SEQUENCING OF THE FRANCISELLA TULARENSIS STRAIN SCHU 4 GENOME REVEALS THE SHIKIMATE AND PURINE METABOLIC PATHWAYS, TARGETS FOR THE CONSTRUCTION OF A RATIONALLY ATTENUATED AUXOTROPHIC VACCINE" MICROBIAL AND COMPARATIVE GENOMICS, MARY ANN LIEBERT, LARCHMONT, NY, US, vol. 5, no. 1, 2000, pages 25-39, XP009018156 ISSN: 1090-6592	2
A	the whole document	1,3-7
X	LONG G.W. ET AL.: "DETECTION OF FRANCISELLA TULARENSIS IN BLOOD BY POLYMERASE CHAIN REACTION" JOURNAL OF CLINICAL MICROBIOLOGY, WASHINGTON, DC, US, vol. 31, no. 1, 1993, pages 152-154, XP000614920 ISSN: 0095-1137	2
A	abstract	1,3-7
E	WO 03 102191 A (SECR. OF STATE FOR DEFENCE) 11 December 2003 (2003-12-11) claims 1-28; figure 4	1-7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/24218

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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:

Although claims 4-7 are directed to a method of treatment of the human/animal body ("providing a sample"), the search has been carried out and based on corresponding diagnostic methods without the step of providing a sample.
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 II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

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

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 fee, this Authority did not invite payment of any additional fee.
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.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/US 03/24218

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9711195	A	27-03-1997	WO 9711195 A1	27-03-1997
WO 03102191	A	11-12-2003	WO 03102191 A1	11-12-2003