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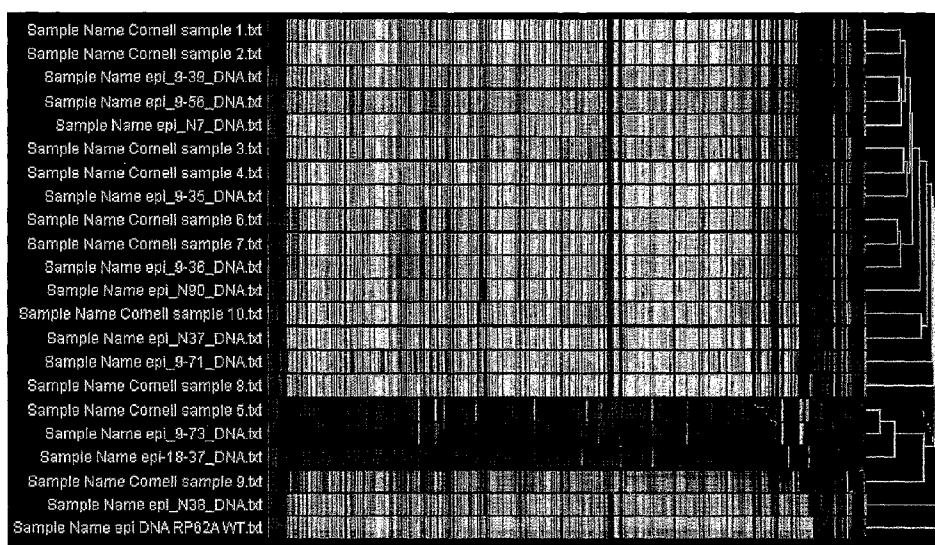
— with international search report

(88) Date of publication of the international search report:

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROBE ARRAYS FOR DETECTING MULTIPLE STRAINS OF DIFFERENT SPECIES



(57) Abstract: The present invention provides probe arrays and methods of using the same for concurrent and discriminable detection of multiple strains of different species. In one aspect, the probe arrays of the present invention are nucleic acid arrays comprising (1) a first group of probes, each of which is specific to a different respective strain of a first species; and (2) a second group of probes, each of which is specific to a different respective strain of a second species. In many embodiments, the nucleic acid arrays of the present invention further include a third group of probes, each of which is specific to a different strain of a third species. In one example, a nucleic acid array of the present invention includes probes for sequences selected from SEQ ID NOs: 1 to 18,598, and can discriminably detect different strains of *Streptococcus pyogenes*, *Streptococcus agalactiae* and *Staphylococcus epidermidis*.

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INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTER
INV. C12Q1/68 G01N33/569

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)
C12Q 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 practical, 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	FESSEHAIE A ET AL: "AN OLIGONUCLEOTIDE ARRAY FOR THE IDENTIFICATION AND DIFFERENTIATION OF BACTERIA PATHOGENIC ON POTATO" PHYTOPATHOLOGY, ST. PAUL, MN, US, vol. 93, no. 3, March 2003 (2003-03), pages 262-269, XP001207428 ISSN: 0031-949X page 266, column 1, paragraph 3 - paragraph 4 page 267, column 1, paragraph 5 - paragraph 6; figure 1; table 2 -----	1,2,12,19
X	WO 01/46477 A1 (CONAGRA GROCERY PRODUCTS COMPA [US]) 28 June 2001 (2001-06-28) page 15, line 12 - page 17, line 14; figure 1 ----- -/--	1-16,18-20



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 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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

8 March 2007

Date of mailing of the international search report

30/03/2007

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

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 00/66789 A (GEN PROBE INC [US]; HOGAN JAMES J [US]) 9 November 2000 (2000-11-09) page 30, line 3 - page 32, line 4 -----	1-16, 18-20
X	WO 01/77372 A (FACULTES UNIVERSITAIRES NOTRE [BE]; REMACLE JOSE [BE]; HAMELS SANDRINE) 18 October 2001 (2001-10-18) paragraph [0016] - paragraph [0017] paragraph [0046] - paragraph [0048] paragraph [0054]; figure 2; example 5 -----	1-16, 18-20
X	WO 03/031654 A (SJ HIGHTECH CO LTD [KR]; KIM CHEOL-MIN [KR]; PARK HEE-KYUNG [KR]; JANG) 17 April 2003 (2003-04-17) page 7, line 3 - page 9, line 30 page 12, line 8 - line 28; figure 1 -----	1-16, 18-20
A	SNYDER LORI AS ET AL: "Microarray genotyping of key experimental strains of Neisseria gonorrhoeae reveals gene complement diversity and five new neisserial genes associated with Minimal Mobile Elements" BMC GENOMICS, BIOMED CENTRAL, LONDON, GB, vol. 5, no. 1, 13 April 2004 (2004-04-13), page 23, XP021002103 ISSN: 1471-2164 abstract page 24, column 2, paragraph 3 -----	1-16, 18-20
X	DUNMAN P M ET AL: "Uses of Staphylococcus aureus GeneChips in genotyping and genetic composition analysis" JOURNAL OF CLINICAL MICROBIOLOGY, WASHINGTON, DC, US, vol. 42, no. 9, September 2004 (2004-09), pages 4275-4283, XP002333022 ISSN: 0095-1137 the whole document -----	1-16, 18-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/035471

Box 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.: 17
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:
see FURTHER INFORMATION sheet PCT/ISA/210
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 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:

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 17

Claim 17 relates to an agent identified by the method of claim 16. The subject-matter is unclear (Art.6 PCT) as it does not define the agent in terms of structure or any other tangible features that would enable the skilled person to determine its identity. Furthermore, the application has not identified any such agents. Therefore, no meaningful search can be carried out for claim 17.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2005/035471

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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