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(54) Title: PEPTIDE NUCLEIC ACID PROBES FOR ANALYSIS OF CERTAIN *STAPHYLOCOCCUS* SPECIES

(57) Abstract: The present invention relates to peptide nucleic acid (PNA) probes, PNA probe sets and methods for the analysis of certain *Staphylococcus* species optionally present in a sample. The invention further relates to diagnostic kits comprising such PNA probes or PNA probe sets.

WO 2005/054516 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/039781

A. CLASSIFICATION OF SUBJECT MATTER
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)
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, PAJ, WPI Data, EMBASE, BIOSIS, 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 | US 6 380 370 B1 (DOUCETTE-STAMM LYNN A ET AL) 30 April 2002 (2002-04-30) column 8, paragraphs 1,4,7 column 11, paragraph 1 claim 1 | 1-4,9, 14-59 |
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| | ----- -/-- | |

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
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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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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 00/66788 A (GEN-PROBE INCORPORATED; HOGAN, JAMES, J; GORDON, PATRICIA) 9 November 2000 (2000-11-09) claims 1,11,14,21,22,30,40 page 20, paragraph 1 ----- | 1-4,9, 14-59 |
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| P,X | WO 2004/053105 A (NANOSPHERE, INC; BAO, YIJIA, P; MARLA, SUDHAKAR, S; MULLER, UWE; STORH) 24 June 2004 (2004-06-24) claims 150-157 page 5, paragraph 1 page 10, paragraph 3 page 18, paragraph 2 page 35, paragraph 1 ----- | 1-4,9, 14-59 |
| P,X | WO 2004/029299 A (HAIN LIFESCIENCE GMBH; WEIZENEGGER, MICHAEL; BOLLEN, MICHAELA) 8 April 2004 (2004-04-08) claims 1.2,616-18 pages 3,5,22 page 33; sequence 48 ----- | 1-4,9, 14-59 |
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/039781

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.:
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 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 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.:

1-3, 14-59 (partially), 4 and 9 (completely)

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

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-3, 14-59 (partially), 4 and 9 (completely)

PNA probe comprising a nucleobase sequence suitable for the analysis of *S.epidermidis*, probe sets and kits comprising said probe and methods for analysing *S.epidermidis*.

2. claims: 1-3, 14-59 (partially), 5 and 10 (completely)

PNA probe comprising a nucleobase sequence suitable for the analysis of *S.hominis*, probe sets and kits comprising said probe and methods for analysing *S.hominis*.

3. claims: 1-3, 14-59 (partially), 6 and 11 (completely)

PNA probe comprising a nucleobase sequence suitable for the analysis of *S.haemolyticus*, probe sets and kits comprising said probe and methods for analysing *S.haemolyticus*.

4. claims: 1-3, 14-59 (partially), 7 and 12 (completely)

PNA probe comprising a nucleobase sequence suitable for the analysis of *S.lugdunensis*, probe sets and kits comprising said probe and methods for analysing *S.lugdunensis*.

5. claims: 1-3, 14-59 (partially), 8 and 13 (completely)

PNA probe comprising a nucleobase sequence suitable for the analysis of *S.saprophyticus*, probe sets and kits comprising said probe and methods for analysing *S.saprophyticus*.

6. claims: 1-3,14,15,25-59 (partially)

PNA probe comprising a nucleobase sequence, wherein at least a portion of the probe is at least 86% identical to the nucleobase sequence or complement of SEQ ID No.4 suitable for the analysis of *S.warneri*, probe sets and kits comprising said probe and methods for analysing *S.warneri* using said probe.

7. claims: 1-3,14,15,25-59 (partially)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

PNA probe comprising a nucleobase sequence, wherein at least a portion of the probe is at least 86% identical to the nucleobase sequence or complement of SEQ ID No.9 suitable for the analysis of *S.sciuri*, probe sets and kits comprising said probe and methods for analysing *S.sciuri* using said probe.

8. claims: 1-3,14,15,25-59 (partially)

PNA probe comprising a nucleobase sequence, wherein at least a portion of the probe is at least 86% identical to the nucleobase sequence or complement of SEQ ID No.10 or 11 suitable for the analysis of *S.schleiferi*, probe sets and kits comprising said probe and methods for analysing *S.schleiferi* using said probe.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/039781

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