

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
24 February 2005 (24.02.2005)

PCT

(10) International Publication Number
WO 2005/017202 A3

(51) International Patent Classification⁷: **C12Q 1/68**

(21) International Application Number:
PCT/US2004/014690

(22) International Filing Date: 11 May 2004 (11.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/469,997 13 May 2003 (13.05.2003) US
60/516,100 31 October 2003 (31.10.2003) US

(71) Applicant (for all designated States except US):
GEN-PROBE INCORPORATED [US/US]; 10210
Genetic Center Drive, San Diego, CA 92121 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HOGAN, James, J.**
[US/US]; 1038 Olive Lane, Coronado, CA 92118 (US).
KAPLAN, Shannon, K. [US/US]; 1055 Donahue Street,
#6, San Diego, CA 92110 (US).

(74) Agent: **GILLY, Michael, J.**; Gen-Probe Incorporated,
10210 Genetic Center Drive, San Diego, CA 92121 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, NA, 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, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

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:
21 July 2005

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.



WO 2005/017202 A3

(54) Title: METHOD AND KIT FOR IDENTIFYING ANTIBIOTIC-RESISTANT MICROORGANISMS

(57) Abstract: The invention provides a rapid sample-processing method for preparing hybridization reaction mixtures substantially depleted of RNA, and a method of identifying the methicillin-resistance status and vancomycin-resistance status of an organism.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/014690

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, EMBASE, Sequence Search, 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.
Y	<p>HAMELS S ET AL: "CONSENSUS PCR AND MICROARRAY FOR DIAGNOSIS OF THE GENUS STAPHYLOCOCCUS, SPECIES, AND METHICILLIN RESISTANCE" BIOTECHNIQUES, EATON PUBLISHING, NATICK, US, vol. 31, no. 6, December 2001 (2001-12), pages 1364-1366, 1368, XP001153876 ISSN: 0736-6205 page 1366; page 1368</p> <p style="text-align: center;">----- -/--</p>	1-14

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

Date of the actual completion of the international search

11 May 2005

Date of mailing of the international search report

25. 05. 2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Hennard, C

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/014690

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WESTIN L ET AL: "ANTIMICROBIAL RESISTANCE AND BACTERIAL IDENTIFICATION UTILIZING A MICROELECTRONIC CHIP ARRAY" JOURNAL OF CLINICAL MICROBIOLOGY, WASHINGTON, DC, US, vol. 39, no. 3, March 2001 (2001-03), pages 1097-1104, XP001006185 ISSN: 0095-1137 page 1098, table 1; page 1102, table 2 -----	1-14
A	ITO T ET AL: "Structural comparison of three types of staphylococcal cassette chromosome mec integrated in the chromosome in methicillin-resistant Staphylococcus aureus" ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, AMERICAN SOCIETY FOR MICROBIOLOGY, WASHINGTON, DC, US, vol. 45, no. 5, May 2001 (2001-05), pages 1323-1336, XP002238384 ISSN: 0066-4804 page 1332, table of sequences -----	1-14, 18-23
A	PATEL R ET AL: "DNA SEQUENCE VARIATION WITHIN VANA, VANB, VANC-1, AND VANC-2/3 GENES OF CLINICAL ENTEROCOCCUS ISOLATES" ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, AMERICAN SOCIETY FOR MICROBIOLOGY, WASHINGTON, DC, US, vol. 42, no. 1, January 1998 (1998-01), pages 202-205, XP000984072 ISSN: 0066-4804 page 202, left-hand column; figure 1 -----	1-14, 18-23
Y	EP 1 136 566 A (FACULTES UNIVERSITAIRES NOTRE-DAME DE LA PAIX) 26 September 2001 (2001-09-26) examples 1 and 2 -----	1-14
T	ANTHONY R M ET AL: "Direct detection of Staphylococcus aureus mRNA using a flow through microarray" JOURNAL OF MICROBIOLOGICAL METHODS, ELSEVIER, AMSTERDAM, NL, vol. 60, no. 1, January 2005 (2005-01), pages 47-54, XP004658669 ISSN: 0167-7012 page 48, paragraph 2.2-2.3; table 1 -----	1-14, 18-23
X	WO 03/033724 A (MOLECULAR STAGING, INC) 24 April 2003 (2003-04-24)	15
Y	page 12, lines 2-11; page 25, line 24 - page 26, line 30; page 30, lines 3-19; page 31, line 17 ----- -/--	17

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/014690

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 406 892 B1 (ABERIN CHERYL S ET AL) 18 June 2002 (2002-06-18) column 2, line 47 - column 3, line 5; example -----	15-17
Y	FR 2 736 652 A (UNIVERSITE DE BOURGOGNE) 17 January 1997 (1997-01-17) page 10, lines 10-25 -----	15-17
Y	SHI S-R ET AL: "DNA EXTRACTION FROM ARCHIVAL FORMALIN-FIXED, PARAFFIN-EMBEDDED TISSUE SECTIONS BASED ON THE ANTIGEN RETRIEVAL PRINCIPLE: HEATING UNDER THE INFLUENCE OF PH" JOURNAL OF HISTOCHEMISTRY AND CYTOCHEMISTRY, HISTOCHEMICAL SOCIETY, NEW YORK, NY, US, vol. 50, no. 8, August 2002 (2002-08), pages 1005-1011, XP009010320 ISSN: 0022-1554 page 1007, right-hand column; page 1008, table; page 1009, "Discussion" -----	17

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/014690

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.:

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

International Application No. PCT/US2004 /014690

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-14, 18-23

concern devices for detecting nucleic acids in a sample characterised by the presence of more than one probe and probe mix which can be used in the preparation of the device.

2. claims: 15-17

concern a method for the detection of a nucleic acid in a sample.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2004/014690

Box No. 1 Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material

a sequence listing

table(s) related to the sequence listing

b. format of material

in written format

in computer readable form

c. time of filing/furnishing

contained in the international application as filed

filed together with the international application in computer readable form

furnished subsequently to this Authority for the purpose of search

2. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/014690

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1136566	A	26-09-2001	EP 1136566 A1	26-09-2001
			AU 4212401 A	23-10-2001
			WO 0177372 A2	18-10-2001
			EP 1266034 A2	18-12-2002
			JP 2003530116 T	14-10-2003
			US 2003198943 A1	23-10-2003
			US 2002106646 A1	08-08-2002
WO 03033724	A	24-04-2003	US 2004161742 A1	19-08-2004
			US 2003118998 A1	26-06-2003
			CA 2463933 A1	24-04-2003
			EP 1444355 A2	11-08-2004
			WO 03033724 A2	24-04-2003
			US 2003143587 A1	31-07-2003
			US 2003228613 A1	11-12-2003
US 6406892	B1	18-06-2002	CA 2414788 A1	28-11-2002
			EP 1390522 A1	25-02-2004
			JP 2004520079 T	08-07-2004
			WO 02095047 A1	28-11-2002
FR 2736652	A	17-01-1997	FR 2736652 A1	17-01-1997