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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, BR, BW, BY, BZ, CA, CH, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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Published:

— *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))*

— *with sequence listing part of description (Rule 5.2(a))*

(88) **Date of publication of the international search report**:
25 March 2010

(15) **Information about Correction**:

Previous Correction:
see Notice of 23 December 2009

(54) **Title**: METHODS FOR IDENTIFYING EUBACTERIA

(57) **Abstract**: This invention relates, *e.g.*, to methods for detecting a aubacterium, determining if the eubacterium is Gram-positive or Gram-negative, and determining the species of the eubacterium in a sample.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/031583

A. CLASSIFICATION OF SUBJECT MATTER

C12Q 1/68(2006.01)i

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 1/68

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models
Japanese utility models and applications for utility models
(Chinese Patents and application for patent)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal), Delphion, Esp@snet, Pubmed

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KLASCHIK, S. et al. 'Real-Time PCR for detection and differentiation of Gram-positive and Gram-negative bacteria.' Journal of Clinical Microbiology. Vol.40(11), pp.4304-4307.(November 2002) See the abstract.	1-7,10-20
A	SHIGEMURA, K. et al. 'Rapid detection and differentiation of Gram-negative and Gram-positive pathogenic bacteria in urine using Taqman probe.' Clinical and Experimental Medicine. Vol. 4(4), pp. 196-201 (March 2005) See the abstract.	1-7,10-20
A	YANG, S. et al. 'Quantitative Multiprobe PCR assay for simultaneous detection and identification to species level of bacterial pathogens.' Journal of Clinical Microbiology.Vol.40(9),pp.3449-3454(September 2002) See the abstract.	1-7,10-20
A	KLAUSEGGER, A. et al. 'Gram type-specific broad-range PCR amplification for rapid detection of 62 pathogenic bacteria.' Journal of Clinical Microbiology. Vol. 37(2), pp. 464-466 (February 1999) See the abstract.	1-7,10-20

☒ 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 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 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	Date of mailing of the international search report
28 JANUARY 2010 (28.01.2010)	**29 JANUARY 2010 (29.01.2010)**

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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.
A	CARROLL, N. M. et al. 'Detection of and Discrimination between Gram-positive and Gram-negative bacteria in intraocular samples by using nested PCR.' Journal of Clinical Microbiology. Vol. 38(5), pp. 1753-1757 (May 2000) See the abstract.	1-7,10-20
A	CHAKRAVORTY, S. et al. 'A detailed analysis of 16S ribosomal RNA gene segments for the diagnosis of pathogenic bacteria.' Journal of Microbiological Methods. Vol. 69, pp. 330-339 (22 February 2007) See the abstract.	1-7,10-20
PA	YANG, S. et al. 'Rapid PCR-based diagnosis of septic arthritis by early gram -type classification and pathogen identification.' Journal of Clinical Microbiology.Vol.46(4),pp.1386-1390(27 February 2008) See the abstract.	1-7,10-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/031583

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.: 8,9
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 the Extra sheet.

1. ☐ As all required addtional 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.:
1-20

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/031583

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
None			

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/031583

Invention 1: A set of oligonucleotides for distinguishing Gram-positive eubacteria from Gram-negative eubacteria, a method for Gram-typing a eubacterium in a sample using said set of oligonucleotides, and a kit comprising said set of oligonucleotides. (claims 1-20)

Invention 2: A method for determining the species of a eubacterium in a sample employing High Resolution Melting Analysis (HRMA). (claims 21-25)

The Inventions listed as Invention 1 and Invention 2 do not related to a single general inventive concept under PCT Rule 13.1 because under PCT Rule 13.2 they lack the same or corresponding special technical feature. According to PCT Rule 13.2, unity of invention exists only when the same or corresponding technical feature is shared by all claimed inventions.

In this case the first named invention that will be searched without additional fees is Invention 1 represented by claims 1-20.