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Published:

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

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11 July 2013

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(54) Title: ISOLATION OF NUCLEIC ACIDS

(57) Abstract: Provided herein is technology relating to isolating nucleic acids. In particular, the technology relates to methods and kits for extracting nucleic acids from problematic samples such as stool.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/037581

A. CLASSIFICATION OF SUBJECT MATTER

C12Q l/68(2006.01)i, C12M 1/12(2006.01)1, C12N 15/10(2006.01)1, C12S 3/20(2006.01)1

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; C07H 21/04; B01D 21/26; C12M 1/10; B01D 61/00

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubMed:"spin filter, nucleic acid, polyvinylpyrrolidone, stool, magnet"

c. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	WO 90/11345 (BAXTER INTERNATIONAL INC.) 04 October 1990 See abstract ; page 8, lines 11-22 ; figure 1.	1-6 ,74 ,75 , 101 , 102 7-22 ,24-73 ,76-100 , 103-124
X	FOTEDAR, R. et al. Laboratory diagnost ic techniques for Entamoeba spec ies. Cl inical Mi crobiology Reviews . July 2007 , Vol . 20 , No . 3 , pages 511-32 . See page 519-523 .	8-13 , 15-19 , 22 ,24-35 ,40-48 ,50-73 ,76 ,77 ,79-94 , 96-100 , 103 , 104 , 106-121 , 123 , 124
A		1-7 , 14, 20 ,21 ,36-39 ,49 ,74 ,75 ,78 , 95 , 101 , 102 , 105 , 122
A	US 5647990 A (VASSAROTTI, V.) 15 July 1997 See Abstract ; figure 1,5,6,8.	1-22 ,24-124
A	US 2003/0013112 Al (HAUSSELS, S. M.) 16 January 2003 See abstract ; claims 1-16 .	1-22 ,24-124

☒ 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
15 April 2013 (15.04.2013)	**16 April 2013 (16.04.2013)**
Name and mailing address of the ISA/KR Korean Intellectual Property Office 189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan City, 302-70 1, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer LEE, Hyun Ji Telephone No. 82-42-481-8745

Form PCT/ISA/210 (second sheet) (My 2009)

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	ANDREADIS, J. D. et al. Use of immobilized PCR primers to generate covalently immobilized DNAs for in vitro transcription/translation reactions. Nucleic Acids Res. 15 January 2000, Vol. 28, No. 2, page e5. See abstract.	1-22,24-124

INTERNATIONAL SEARCH REPORT

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been estabhshed 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.: 23
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. Ill 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:

Invention 1: a spin filter (claims 1-7,74,75,101,102)

Invention 2: a method for removing an assay inhibitor from a crude sample(claims 8-21,76-79,103-106)

Invention 3: a method for isolating nucleic acids from a stool sample(claims 22-70,80-97,107-124)

Invention 4: a kit for preparing a nucleic acid solution from a sample(claims 71-73,98-100)

1. ☒ *A s* 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.:

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/US2012/037581

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