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(71) Applicant (for all designated States except US): **UNIVERSITY OF VIRGINIA PATENT FOUNDATION**

[US/US]; 250 West Main Street, Suite 300, Charlottesville, Virginia 22902 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LANDERS, James P.** [CA/US]; 633 Nettle Court, Charlottesville, Virginia 22903 (US). **LI, Jingyi** [CN/US]; 476 Farrish Circle, Apt. 1, Charlottesville, Virginia 22903 (US). **LIU, Qian** [CN/US]; 126 Appletree Road Apt. A, Charlottesville, Virginia 22903 (US).

(74) Agents: **PERDOK SHONKA, Monique M.** et al.; Schwegman, Lundberg & Woessner, P.A., P.O. Box 2938, Minneapolis, Minnesota 55402 (US).

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(54) Title: METHOD AND SYSTEM TO DETECT AGGREGATE FORMATION ON A SUBSTRATE

(57) Abstract: The invention provides methods to detect or determine the presence or amount of a polymeric analyte in a sample, which employ magnetic particles and subjects the sample and the magnetic substrate to forms of energy so as to induce aggregate formation, which is then detected on a substrate, e.g., filter paper.



INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/036139

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N33/543 G01N35/00 C12Q1/68 G01N33/538
ADD.

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)
G01N 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 practicable, 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	US 2002/081714 A1 (JAIN MANEESH [US] ET AL) 27 June 2002 (2002-06-27) fig. 1, 9; par. 0039, 0043, 0053-0056, 0063, 0069, 0114, 0136, 0146-0150, 0179-0182, 0188; examples 2-4 -----	1-23
X	WANG J ET AL: "magnetically-induced solid-state electrochemical detection of DNA hybridization", JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, ACS PUBLICATIONS, vol. 124, no. 16, 1 January 2002 (2002-01-01), pages 4208-4209, XP002263854, ISSN: 0002-7863, DOI: 10.1021/JA0255709 p. 4208; fig. 1 ----- -/--	1-23



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 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

28 August 2012

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17/01/2013

Name and mailing address of the ISA/

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

Authorized officer

Schindler-Bauer, P

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/036139

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MOSER C ET AL: "Microsphere sedimentation arrays for multiplexed bioanalytics", ANALYTICA CHIMICA ACTA, ELSEVIER, AMSTERDAM, NL, vol. 558, no. 1-2, 3 February 2006 (2006-02-03), pages 102-109, XP027912387, ISSN: 0003-2670 [retrieved on 2006-02-03] abstract; p. 103; fig. 1 -----	1-23
X	CRAWFORD A M ET AL: "Patterned Magnetic Bar Array for High-Throughput DNA Detection", IEEE TRANSACTIONS ON MAGNETICS, IEEE SERVICE CENTER, NEW YORK, NY, US, vol. 40, no. 4, 1 July 2004 (2004-07-01), pages 3006-3008, XP011117045, ISSN: 0018-9464, DOI: 10.1109/TMAG.2004.832161 p. 3006-3007 -----	1-23
X	MOROZOV V N ET AL: "Active bead-linked immunoassay on protein microarrays", ANALYTICA CHIMICA ACTA, ELSEVIER, AMSTERDAM, NL, vol. 564, no. 1, 30 March 2006 (2006-03-30), pages 40-52, XP027913100, ISSN: 0003-2670 [retrieved on 2006-03-30] abstract; fig. 3, 6, 10; whole document -----	1-23
X	WO 2009/114709 A2 (UVA PATENT FOUNDATION [US]; LANDERS JAMES [US]; FINKLER DAVID [US]; BA) 17 September 2009 (2009-09-17) the whole document -----	1-23
A	HAUKANES B-I ET AL: "APPLICATION OF MAGNETIC BEADS IN BIOASSAYS", BIO/TECHNOLOGY, NATURE PUBLISHING CO. NEW YORK, US, vol. 11, no. 1, 1 January 1993 (1993-01-01), pages 60-63, XP000609039, ISSN: 0733-222X, DOI: 10.1038/NBT0193-60 the whole document -----	1-23
A,P	WO 2011/056215 A1 (LANDERS JAMES P [US]; FINKLER DAVID M [US]; BARKER NICOLAS SCOTT [US];) 12 May 2011 (2011-05-12) the whole document ----- -/--	1-23

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/036139

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 03/096014 A2 (YISSUM RES DEV CO [IL]; WILLNER ITAMAR [IL]; KATZ EUGENII [IL]; WEIZMA) 20 November 2003 (2003-11-20) the whole document -----	1-23

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/036139

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.:
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 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 fees, this Authority did not invite payment of additional fees.
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.:

1-23

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-23

Method for detecting a polymeric analyte in a sample

2. claims: 24-36

Method for detecting a target nucleic acid with a specific sequence in a sample

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/036139

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002081714	A1	27-06-2002	NONE
WO 2009114709	A2	17-09-2009	AU 2009223122 A1 17-09-2009
			EP 2265942 A2 29-12-2010
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