



(51) International Patent Classification:

G01N33/536 (2006.01) G01N33/53 (2006.01)
G01N33/50 (2006.01) C12Q1/68 (2006.01)

(21) International Application Number:

PCT/IB2013/001846

(22) International Filing Date:

23 May 2013 (23.05.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/650,768 23 May 2012 (23.05.2012) US
61/654,861 2 June 2012 (02.06.2012) US

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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, BN, BR, BW, BY, BZ, CA, CH, CL, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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))

(88) Date of publication of the international search report:

27 February 2014

(54) Title: MICROBEAD AGGLUTINATION BASED ASSAYS

(57) Abstract: A method for detecting the presence of an analyte in a sample can include adding a plurality of microparticles of a first-type to the sample, where each microparticle of the first-type includes a first binding partner configured to interact with at least a first portion of the analyte, adding a plurality of microparticles of a second-type to the sample, where each microparticle of the second-type includes a second binding partner configured to interact with at least a second portion of the analyte, the first portion of the analyte being different from the second portion of the analyte, and identifying an aggregate including at least one microparticle of the first-type, at least one microparticle of the second-type and the analyte, where the aggregate indicates the presence of the analyte.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 13/01846

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G01 N 33/536, 33/50, 33/53; C 12Q 1/68 (201 3.01)
USPC - 436/536; 702/21; 435/6.1, 7,5
 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)
 USPC: 436/536; 702/21; 435/6.1, 7,5

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 USPC: 436/536, 512, 533; 435/6.1, 7.5; 702/21, 19; 382/128 (text search)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Electronic data bases: PatBase, Google Patents, Google Scholar
 Search terms: agglutination assay, mciroparticle, two binding pairs or haptens, antibody, nucleic acid, biotin, digoxigenin, digital imaging, image analysis, pixel, deviation analysis, grayscale, binary value

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 5,989,813 A (GERDES) 23 November 1999 (23.11.1999). Especially col 3 ln 29-32, col 5 ln 46-57, col 6 ln 46-5", col 10 ln 33-43, sheet 1 figs 1-4, sheet 3 fig 6, sheet 4 fig 7.	1-4 ----- 27-33
Y	US 2010/01 19132 A1 (TAKAKURA et al.) 13 May 2010 (13.05.2010). Especially para [0086], [0099], [0125].	27-29, 31, (32-33)/31
Y	US 5,817,526 A (KINOSHITA et al.) 6 October 1998 (06.10.1998). Especially col 3 ln 13-27; col 10 ln 5-22, col 10 ln 30-37.	30-33

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular-relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search 26 November 2013 (26.11.2013)	Date of mailing of the international search report 13 DEC 2013
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 13/01846

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.: 5-26, 34, 35
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:

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 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.:

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.