



(43) International Publication Date
4 August 2016 (04.08.2016)

(10) International Publication Number
WO 2016/123165 A3

- (51) **International Patent Classification:**
G01N 33/543 (2006.01) *G01N 33/94* (2006.01)
- (21) **International Application Number:**
PCT/US2016/015025
- (22) **International Filing Date:**
27 January 2016 (27.01.2016)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
62/109,252 29 January 2015 (29.01.2015) 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, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, 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, SA, 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, ST, 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, KM, 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:**
13 October 2016

(54) **Title:** METHODS FOR IMMUNO CHROMATOGRAPHIC ASSAY DESENSITIZATION

(57) **Abstract:** The present disclosure provides a device and method for measuring an amount of an analyte in a sample, comprising a lateral flow matrix which defines a flow path and which comprises, in series: a sample receiving zone; a labeling zone comprising an unlabeled receptor and a labeled receptor, the unlabeled receptor located downstream of the labeled receptor and separated by a distance; and two serially oriented capture zones capable of providing quantitation of the amount of the analyte in the sample.



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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2016/015025

A. CLASSIFICATION OF SUBJECT MATTER

INV. G01N33/543 G01N33/94
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

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 2012/083047 A1 (NAZARETH ALBERT R [US] ET AL) 5 April 2012 (2012-04-05)	1,2
Y	paragraphs [0025], [0042] - [0046]; figures 1A, 2A, 3B	3-26,59
Y	----- EP 0 603 958 A1 (EASTMAN KODAK CO [US]) 29 June 1994 (1994-06-29) page 7, lines 7-10	59
Y	----- US 2008/176342 A1 (GRANIER BENOIT [BE]) 24 July 2008 (2008-07-24) claim 1	3-26
A	----- WO 97/06439 A1 (QUIDEL CORP [US]) 20 February 1997 (1997-02-20) the whole document	1-26,59



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

9 June 2016

Date of mailing of the international search report

29/08/2016

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2016/015025

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.:

1-26, 59

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: 1-26, 59

Lateral flow device and kit for measuring an amount of an analyte comprising:
a labeling zone comprising an unlabeled receptor and a labeled receptor, the unlabeled receptor located downstream of the labeled receptor and separated by a distance; and
two serially oriented capture zones capable of providing quantitation of the amount of the analyte in the sample.

2. claims: 27-58

Method for measuring an amount of an analyte comprising the use of a lateral flow device comprising: a labeling zone comprising an unlabeled receptor and a labeled receptor, the unlabeled receptor located downstream of the labeled receptor and separated by a distance; and
allowing the sample to come into contact with a receptor binder on a solid support, wherein the receptor binder binds to the at least one of the unlabeled or the labeled receptors but does not bind to the one or more analyte-receptor complexes; and
detecting a quantity of the receptor binder bound to the at least one of the unlabeled or labeled receptors as an inverse indication of the amount of the analyte in the sample at or above a predetermined threshold level.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2016/015025

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2012083047	A1	05-04-2012	NONE
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