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(74) Agent: GATTARI, Patrick, G.; MCDONNELL
BOEHNEN HULBERT & BERGHOFF LLP, 300 South
Wacker Drive, Suite 3200, Chicago, IL 60606 (US).

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(71) Applicant (for all designated States except US): IDEXX
LABORATORIES, INC. [US/US]; One Idexx Drive,
Westbrook, ME 04092 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): CARPENTER,
Charles, R. [US/US]; 175 Holmes Road, Scarborough,
ME 04704 (US). FARACE, Giosi [GB/US]; 98 Knubble
Road, Georgetown, ME 04548 (US). MACHENRY, Paul,
Scott [US/US]; 79 Branhall Street, #4c, Portland, ME
04012 (US). FOSTER, Brian, John [US/US]; 29 Grant
Street #6, Portland, ME 04012 (US). ZIEBA, Mirolee,
Blue [US/US]; 14 Emery Street, Westbrook, ME 04092
(US).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: LATERAL FLOW ASSAY AND DEVICE USING MAGNETIC PARTICLES

(57) Abstract: A complex including magnetic particle bound to a metal colloid. The complex may be part of a reagent for use in a method for determining analytes. The reagent may include a binding partner specific for an analyte. The reagent may further include a first label that is distinguishable from a second label that is used to detect the analyte. The reagent is used in kits and methods for detecting analytes in samples. The methods include immunoassay methods, including method where the first label is used to calibrate the assay.



WO 2007/011936 A3

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N33/558 G01N33/543 G01N33/50 H01F1/36 B01L3/00

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 practical, search terms used)

EPO-Internal, WPI Data, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	NAM J-M ET AL: "Nanoparticle-based bio-bar-codes for the ultrasensitive detection of p" SCIENCE, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE,, US, vol. 301, 26 September 2003 (2003-09-26), pages 1884-1886, XP002396891 ISSN: 0036-8075 figure 1	1-3, 10-12, 14,15, 21,22, 24,25,31
X	SEINO ET AL: "Radiation-induced synthesis of Au/Fe oxide nanocomposite particles for magnetic separation of biomolecules" JOURNAL OF CERAMIC PROCESSING RESEARCH, vol. 5, no. 2, 2004, pages 136-139, XP002417830 pages 136-137 figure 5	1,3-5, 11,12

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 document 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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Hohwy, Morten

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.
X	TENG CHIEN-HSUN ET AL: "Gold nanoparticles as selective and concentrating probes for samples in MALDI MS analysis." ANALYTICAL CHEMISTRY 1 AUG 2004, VOL. 76,, vol. 76, no. 15, 1 August 2004 (2004-08-01), pages 4337-4342, XP002417832 ISSN: 0003-2700 page 4338	1,5,11
Y	MANDAL M ET AL: "Magnetite nanoparticles with tunable gold or silver shell" JOURNAL OF COLLOID AND INTERFACE SCIENCE, ACADEMIC PRESS, NEW YORK, NY, US, vol. 286, no. 1, 1 June 2005 (2005-06-01), pages 187-194, XP004858739 ISSN: 0021-9797 figure 2 abstract	1-16, 21-32, 39-42, 44-50
X	US 2002/094548 A1 (FEISTEL CHRISTOPHER [US]) 18 July 2002 (2002-07-18) page 10	33-38
Y	figure 1 page 8	1-16, 21-32, 39-42, 44-50
Y	US 2004/082768 A1 (MURTHY YERRAMILLI [US] ET AL) 29 April 2004 (2004-04-29) abstract	13,16, 23,42

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/027845

Box 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 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 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.:

1-16, 21-32, 39-42, 44-50 and 33-38

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- 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:

Inventions 1 & 3: Claims 1-16,21-32,39-42,44-50 and 33-38

Invention 1: Claims 1-16, 21-32,39-42,44-50.

A complex comprising a magnetic nanoparticle bound to a metal colloid and kits including such complexes.

Invention 3: Claims 33-38.

A device (a lateral flow assay) comprising a porous carrier matrix and a magnet, for which the complex of invention I is a suitable reagent.

Invention 2: Claims 17-20

A metal colloid with a label, a first specific binding partner, and an analyte-specific binding partner.

Invention 4: Claims 43,51-96

A kit and method of analysis, using the reagent of invention I, the device of invention III, and a conjugate reagent comprising a second label.

Invention 5: Claims 97-107

A method of calibrating a substrate, using the reagent of invention I, further comprising an enzyme, and detecting a chemiluminescent signal.

INTERNATIONAL SEARCH REPORT

Information on patent family members

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