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Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

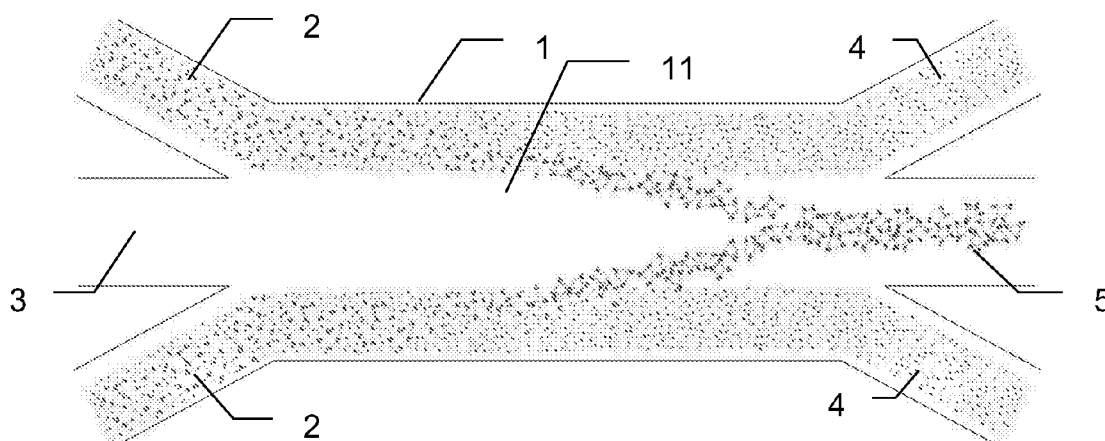
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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

17 January 2008

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: METHOD FOR SEPARATION



(57) Abstract: The invention relates to a method for separation of elements from a fluid using affinity-bearing particles suspended in the fluid and using ultrasonic standing waves and micro-fluidics. The method includes the steps of: mixing said fluid mixture with particles (10) having affinity to at least one element (9) to be separated; allowing the element (9) to be separated to bind to said affinity-bearing particles (10); subjecting the fluid to an ultrasonic wave field resulting in forces on the affinity-bearing particles (10) but substantially no forces on elements not bound to affinity-bearing particles; and allowing said forces to move said affinity-bearing particles (10) to a portion of the fluid thus obtaining a locally higher concentration of affinity-bearing particles. The method may be performed in a process with continuous flow.

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2007/054372

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61M1/36 B01D21/00

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)

A61M B01D B01J C12N

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/12896 A (AVIVA BIOSCIENCES CORP [US]) 14 February 2002 (2002-02-14) page 4, lines 15-17 page 8, lines 26,27 page 63, lines 1-32 -----	1-24
X	EP 0 302 724 A2 (UNILEVER PLC [GB]; UNILEVER NV [NL]) 8 February 1989 (1989-02-08) page 7, line 62 - page 8, line 6 -----	1
A	WO 02/072235 A (ERYSAVE AB [SE]; LAURELL THOMAS [SE]; ALLERS MATS [SE]; JOENSSON HENRI) 19 September 2002 (2002-09-19) cited in the application page 4, line 13 - page 12, line 7; figures 1-22 -----	1-24

☐ 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.

"&" document member of the same patent family

Date of the actual completion of the international search

13 August 2007

Date of mailing of the international search report

26/11/2007

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2007/054372

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 allsearchable 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 reportcovers 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.:

see additional sheet(s)

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: 1-24

A method for separating an element from a fluid, including mixing the fluid with affinity bearing particles and subjecting the fluid to an ultrasonic wave field resulting in forces on the affinity-bearing particles, to which the elements has bound.

Problem to be solved: Selective removal of elements from the fluid.

2. claims: 25-28

A method for separating an element from a fluid, including subjecting the fluid to a first ultrasonic wave field and to a further ultrasonic wave field perpendicular to the first ultrasonic wave field.

Problem to be solved: Minimising dispersion of the stream of separated particles ("acoustic focusing").

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2007/054372

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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