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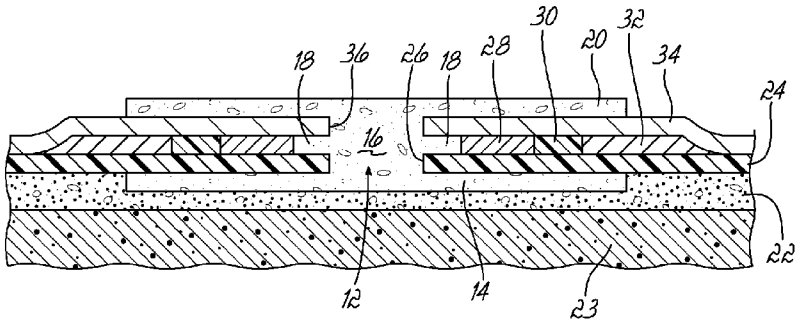



FIG. 2

(57) Abstract: Biological chemicals, potentially found in blood are measured by collecting sweat and determining the concentration or meaning of the selected chemical in sweat. The sweat can be collected using a time based, interval collector (10) and analyzed using an external device. It can also be collected on a one time basis, using a flexible, chemical capacitor (50), or on a continuous basis using a chemical, field effect transducer 98.

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# INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/035092

A. CLASSIFICATION OF SUBJECT MATTER
INV. B01L3/00 A61B10/00
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)
B01L A61B

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, 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 | EP 1 500 937 A1 (ARKRAY INC [JP]) 26 January 2005 (2005-01-26) paragraphs [0077] - [0078], [0082] - [0090], [0106]; figures 4-10,21 | 1,2,7,9 |
| X | WO 01/88525 A1 (UNIV CINCINNATI [US]; AHN CHONG H [US]; CHOI JIN WOO [US]; PUNTAMBEKAR) 22 November 2001 (2001-11-22) paragraphs [0063] - [0068]; figures 2a-4 | 10-12,15 |

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[X] Further documents are listed in the continuation of Box C.

[X] 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 | Date of mailing of the international search report |
|---|---|
| 14 August 2013 | 29/11/2013 |

| Name and mailing address of the ISA/ | Authorized officer |
|---|---|
| European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040,<br>Fax: (+31-70) 340-3016 | Pessenda García, P |

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Form PCT/ISA/210 (second sheet) (April 2005)

# INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/035092

**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.:

1-16

**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.

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | ELAIN FU ET AL: "Controlled reagent transport in disposable 2D paper networks", LAB ON A CHIP, ROYAL SOCIETY OF CHEMISTRY, vol. 10, 15 January 2010 (2010-01-15), pages 918-920, XP007912324, ISSN: 1473-0197, DOI: 10.1039/B919614E [retrieved on 2010-01-15] | 10,11, 15,16 |
| Y | the whole document | 1,2,7-9, 12,13 |
| Y | WO 2010/017578 A1 (UNIV MONASH [AU]; SHEN WEI [AU]; LI XU [AU]; TIAN JUNFEI [AU]; NGUYEN) 18 February 2010 (2010-02-18) figures 1-10 | 1,2,7-9, 12,13 |
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| A | WO 2008/083687 A1 (SCANDINAVIAN MICRO BIODEVICES [DK]; BAU-MADSEN NIELS KRISTIAN [DK]; JO) 17 July 2008 (2008-07-17) figures 1-10 | 1-16 |

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Information on patent family members

International application No
PCT/US2013/035092

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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/** 210

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

1. claims: 1-16

   A fluid sample collector and a method of collecting an aqueous sample over time, the apparatus comprising an aqueous fluid absorbing member, a plurality of discrete fluid transporting paths each having a separate time flow restrictor, and a flow bridge

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2. claims: 17, 18

   A method of determining a concentration of a first chemical in sweat comprising collecting a volume of sweat; determining the amount of said first chemical in said volume of sweat without determining the volume of said sweat; determining the amount of a second chemical in said sweat in said volume of sweat to establish a ratio of said first chemical to said second chemical.

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3. claims: 19-24

   An apparatus to detect biological chemicals in sweat comprising a reservoir containing a cholinergic agonist adjacent a biological chemical sensor, said sensor having one or more functional groups in an assay region reactive with one or more biological chemicals.

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4. claims: 25-38

   A continuous body chemical monitor and a method of measuring biomolecules in sweat comprising a collection portion, a transfer portion, a removal portion and a sensor on a water impervious base.

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