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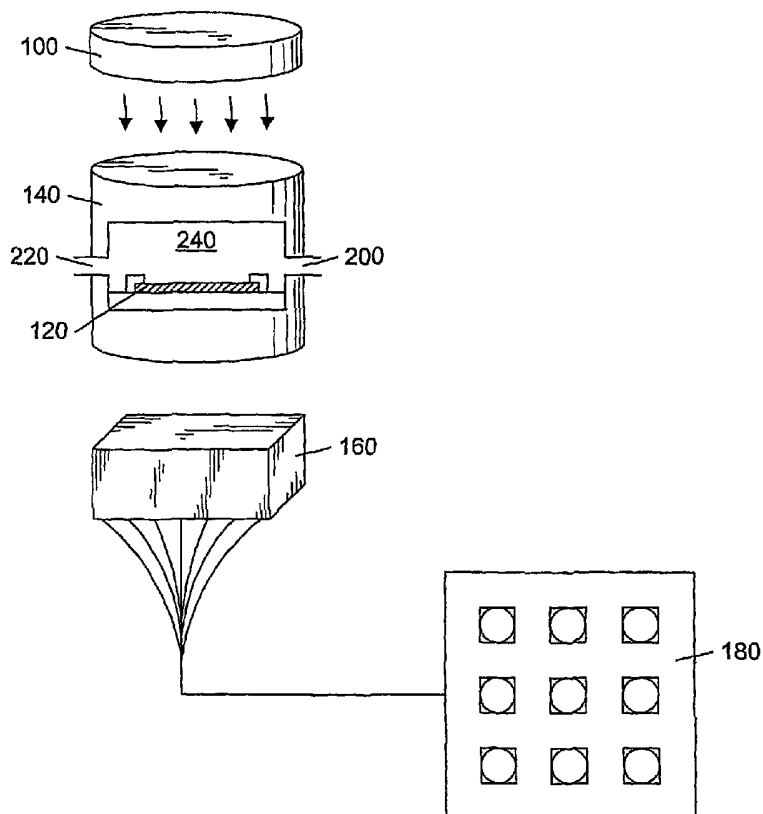
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(54) Title: METHOD AND SYSTEM FOR THE ANALYSIS OF SALIVA USING A SENSOR ARRAY



(57) Abstract: A system for the rapid characterization of analytes in saliva. In one embodiment, a system for detecting analytes includes a light source, a sensor array, and a detector. The sensor array is formed from a supporting member, in which a plurality of cavities may be formed. A series of chemically sensitive particles, in one embodiment, are positioned within the cavities. The particles may produce a signal when a receptor, coupled to the particle, interacts with the cardiovascular risk factor analyte and the particle-analyte complex is visualized using a visualization reagent. Using pattern recognition techniques, the analytes within a multi-analyte fluid may be characterized. In an embodiment, each cavity of the plurality of cavities is designed to capture and contain a specific size particle. Flexible projections may be positioned over each of the cavities to provide retention of the particles in the cavities.



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/041633

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N33/53 G01N33/552 G01N33/544 G01N33/92 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)

IPC 7 G01N B01L

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, PAJ, 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	<p>WO 03/090605 A (BOARD OF REGENTS, THE UNIVERSITY OF TEXAS SYSTEM) 6 November 2003 (2003-11-06) page 1, line 29 - page 3, line 19 page 6, lines 8-35 page 8, line 8 - page 9, line 20 page 10, line 31 - page 12, line 10 page 13, line 22 - page 14, line 29 page 28, line 36 - page 31, line 27 page 44, line 33 - page 48, line 32 page 49, line 27 - page 52, line 12 claims 38-69</p> <p style="text-align: center;">----- -/--</p>	1-5, 31



Further documents are listed in the continuation of box C.



Patent family members are listed in 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

7 June 2005

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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	<p>US 6 649 403 B1 (MCDEVITT JOHN T ET AL) 18 November 2003 (2003-11-18) figures 1,3,22A-22G column 4, line 43 - column 7, line 7 column 10, line 42 - column 13, line 42 column 18, line 27 - column 19, line 38 column 20, lines 16-40 column 20, line 52 - column 22, line 11 column 22, line 55 - column 23, line 16 column 26, line 63 - column 28, line 10 column 33, line 14 - column 34, line 62 column 39, line 51 - column 40, line 2 column 41, line 62 - column 44, line 37 column 87, lines 6-10 column 90, lines 11-45 column 91, lines 11-55 column 95, lines 7-49 claims 1-28</p>	1-5,31
X	<p>US 5 858 648 A (STEEL ET AL) 12 January 1999 (1999-01-12) figure 1 column 4, lines 40-58 column 5, lines 1,2 column 5, line 48 - column 6, line 7 column 6, lines 40-43 column 7, line 7 - column 8, line 19 claims 1,13,25,31; example 1</p>	1,31
A	<p>US 2003/100036 A1 (VOJDANI ARISTO) 29 May 2003 (2003-05-29) abstract claims 1-5</p>	1-5,31
A	<p>WO 00/55635 A (SEREX INC) 21 September 2000 (2000-09-21) abstract claims 1-20</p>	1-5,31

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/041633

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.:

1-5, 31

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:

1. claims: 1-5,31

Method and device using a sensor array for detecting one or more cardiovascular risk factors in saliva: basic configuration of the sensor array

2. claims: 6-8

Method according to claim 1: technical aspects relating to the configuration of the cavities of the sensor array

3. claims: 9,13-17

Method according to claim 1: technical aspects relating to the nature of the receptors attached to the particles used in the sensor array

4. claim: 10

Method according to claim 1: technical aspects relating to the nature of the polymeric resin forming the particles used in the sensor array

5. claims: 11,12

Method according to claim 1: technical aspects relating to the presence and mode of action of indicator molecules attached to the particles used in the sensor array

6. claims: 18,24

Method according to claim 1: technical aspects relating to the generation of detectable signals in the sensor array

7. claims: 19-23

Method according to claim 1: technical aspects relating to the nature of the analyte

8. claims: 25-28

Method according to claim 1: technical aspects relating to the nature of the material used for the fabrication of the supporting member

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

9. claims: 29,30

Method according to claim 1: technical aspects relating to
the presence and configuration of microfluidic structures in
the sensor array

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/041633

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