

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
25 June 2009 (25.06.2009)

PCT

(10) International Publication Number
WO 2009/077734 A3

(51) International Patent Classification:
G01N 33/487 (2006.01) B01D 67/00 (2006.01)

(21) International Application Number:
PCT/GB2008/004127

(22) International Filing Date:
15 December 2008 (15.12.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0724736.4 19 December 2007 (19.12.2007) GB
61/080,492 14 July 2008 (14.07.2008) 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, BR, BW, BY, BZ, CA, CH, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, 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, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

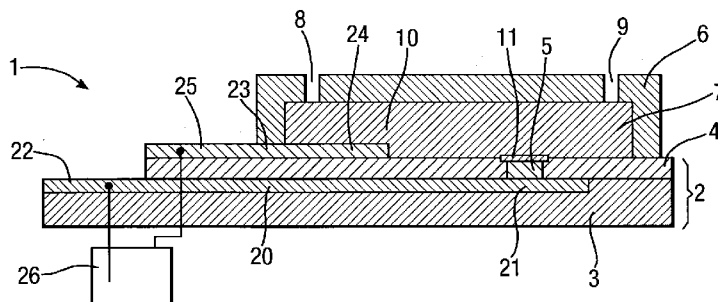
Published:

- 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))
- with sequence listing part of description (Rule 5.2(a))

(88) Date of publication of the international search report:
15 October 2009

(54) Title: FORMATION OF LAYERS OF AMPHIPHILIC MOLECULES

Fig.3.



(57) Abstract: To form a layer (11) separating two volumes of aqueous solution, especially a bilayer lipid membrane (BLM) there is used an apparatus comprising elements defining a chamber (7), the elements including a body (2) of non-conductive material having formed therein at least one recess (5) opening into the chamber, the recess containing an electrode (21). A pre-treatment coating of a hydrophobic fluid is applied to the body across the recess. Aqueous solution, having amphiphilic molecules added thereto, is flowed across the body to cover the recess so that aqueous solution is introduced into the recess from the chamber and a layer of the amphiphilic molecules forms across the recess separating a volume of aqueous solution introduced into the recess from the remaining volume of aqueous solution.

WO 2009/077734 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2008/004127

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N33/487 B01D67/00

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 B01J A61K

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	WO 97/16545 A1 (MASSACHUSETTS INST TECHNOLOGY [US]; CHILDRENS MEDICAL CENTER [US]) 9 May 1997 (1997-05-09)	68-71
A	page 18, line 24 - page 21, line 12; figures 3a,3b; examples 1-3	64-67
X	WO 2007/028003 A2 (UNIV MICHIGAN [US]; MARTIN DAVID C [US]; RICHARDSON-BURNS SARAH [US];) 8 March 2007 (2007-03-08)	64-67
Y	paragraph [0111] - paragraph [0116] paragraph [0143] - paragraph [0145]	44-47
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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

3 August 2009

Date of mailing of the international search report

07/08/2009

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2008/004127

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 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.:

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: 1-14, 17-45, 48-63

Method & apparatus for preparing high resistance lipid bilayer membranes for single ion channel studies etc. CHARACTERISED by hydrophobic pretreatment

2. claims: 15-16, 46-47, 64-71

Method for improving performance of an electrode in a recess in conducting electrophysiological measurements; apparatus incorporating such an electrode CHARACTERISED by conductive polymer coating, eg polypyrrole

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2008/004127

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 712 909 A (JAPAN SCIENCE & TECH AGENCY [JP]) 18 October 2006 (2006-10-18)	30, 37, 41-43, 48, 52-56, 58-59, 61-63
Y	paragraph [0018] - paragraph [0040] figures 4,7-9	44-47
X	----- CHENG Y ET AL: "Discrete membrane arrays". REVIEWS IN MOLECULAR BIOTECHNOLOGY, vol. 74, 1 January 2000 (2000-01-01), pages 159-174, XP001059471 ISSN: 1389-0352	1-2,4-8, 11-13, 17-24, 28-34, 37-41, 43-44, 48-55, 57-63
A	page 169, right-hand column, paragraph 2 - page 173, right-hand column, paragraph 3 figures 13,14	3,9-10, 14,25, 35-36, 42,45
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A	page 5, line 8; figures 1,2	35-36
A	----- SANDISON MAIRI E ET AL: "Air-exposure technique for the formation of artificial lipid bilayers in microsystems." LANGMUIR : THE ACS JOURNAL OF SURFACES AND COLLOIDS 17 JUL 2007, vol. 23, no. 15, 17 July 2007 (2007-07-17) , pages 8277-8284, XP002526094 ISSN: 0743-7463 cited in the application the whole document	1,3-10, 17-18, 20-36, 38-44, 48-63
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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2008/004127

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	<p>EP 1 669 746 A (JAPAN SCIENCE & TECH AGENCY [JP]) 14 June 2006 (2006-06-14) abstract; figure 1</p>	<p>1,30,63</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2008/004127

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