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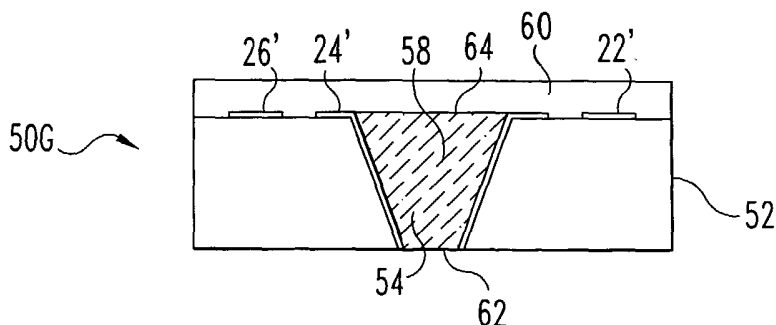
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[Continued on next page]

(54) Title: SENSOR WITH INCREASED BIOCOMPATIBILITY



(57) Abstract: Sensors and methods for producing them are disclosed. A cavity is created and filled with a reagent that includes a conductive matrix, enzyme, catalyst, and binding agent, in a preferred embodiment. The cavity is substantially enclosed, leaving enough of an opening to allow the sample to enter. A portion of the material surrounding the cavity is preferably permeable to a substance useful for measuring reaction, but not to the reagent or the sample. Cavities that have the shape of a cone, conical frustum, pyramidal frustum, and right circular cylinder are given as examples. Other systems include a membrane that contains the sensor's active area and defines an internal volume of fluid, where the membrane or internal volume has a particular geometric relationship to the active area.



**Published:**

— with international search report

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9 June 2005

*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.*

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/032293

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 A61B5/00

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 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 practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01/69222 A (ROCHE DIAGNOSTICS GMBH ; ESSENPREIS MATTHIAS (US)) 20 September 2001 (2001-09-20) page 2, line 19 - page 3, line 20 page 5, line 25 - page 7, line 20 figures 1-12	1-44
A	US 6 343 225 B1 (CLARK JR LELAND C) 29 January 2002 (2002-01-29) column 6, line 23 - column 7, line 66 figures 1,2	1-44
A	US 5 385 846 A (OCHS MARY L ET AL) 31 January 1995 (1995-01-31) column 2, line 61 - column 4, line 46 column 5, line 45 - column 7, line 5	1-44
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

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\*G\* document member of the same patent family

Date of the actual completion of the international search

25 February 2005

Date of mailing of the international search report

22.03.2005

Name and mailing address of the ISA

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/032293

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 916 156 A (HILDENBRAND KARLHEINZ ET AL) 29 June 1999 (1999-06-29) column 4, line 39 - column 7, line 31 -----	1-44
X	US 2001/051768 A1 (SCHULMAN JOSEPH H ET AL) 13 December 2001 (2001-12-13)  paragraphs '0013!, '0024!, '0026!, '0033!, '0034! -----	45-50, 54-56, 59,66
A	US 4 650 547 A (GOUGH ET AL) 17 March 1987 (1987-03-17) column 3, lines 16-43 column 5, line 58 - column 6, line 2 -----	45-67
A	EP 1 113 263 A (ROCHE DIAGNOSTICS CORPORATION) 4 July 2001 (2001-07-04) page 3 figures 1-3 -----	45

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2004/032293

## 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.:

### 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: 1-44

An electrochemical biosensor for in vivo use, having a layer defining a cavity and electrical contacts to the electrodes and reagents filling the cavity.

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2. claims: 45-67

A biosensor for in vivo use, having an active area covered by a membrane positioned over it to allow the pass of an analyte to the active area.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/032293

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