(54) Title: ELECTRONIC DETECTION OF BIOLOGICAL MOLECULES USING THIN LAYERS

(57) Abstract: This invention provides novel sensors that facilitate the detection of essentially any analyte (20). In general, the biosensors of this invention utilize a binding agent (14) (e.g. biomolecule) to specifically bind to one or more target analytes (20). In preferred embodiments, the biomolecules (14) spans a gap (16) between two electrodes (10, 12). Binding of the target analyte (20) changes conductivity of the sensor thereby facilitating ready detection of the binding event and thus detection and/or quantitation of the bound analyte (20).
Published:
— with international search report

Date of publication of the international search report: 11 March 2004

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

A. CLASSIFICATION OF SUBJECT MATTER
   IPC(7) : C12Q 1/68; C12M 1/34
   US CL : 435/6,287.2
   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)
   U.S. : 435/6,287.2, 287.9,287.1, 288.4; 422/68.1, 82.01,82.02, 102; 436/149

   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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 5,653,939 A (HOLLIS et al.) 05 August 1997 (05.08.1997), see entire document, especially Figure 4.</td>
<td>1-176</td>
</tr>
<tr>
<td>A</td>
<td>JP 10-146183 A (HASHIMOTO et al.) 02 June 1998 (02.06.1998), see entire document.</td>
<td>1-176</td>
</tr>
</tbody>
</table>

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

Date of the actual completion of the international search: 08 May 2003 (08.05.2003)

Date of mailing of the international search report: 30 MAY 2003

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (703)305-3230

Authorized officer
William H. Beisner
Telephone No. 703-308-0661

Form PCT/ISA/210 (second sheet) (July 1998)