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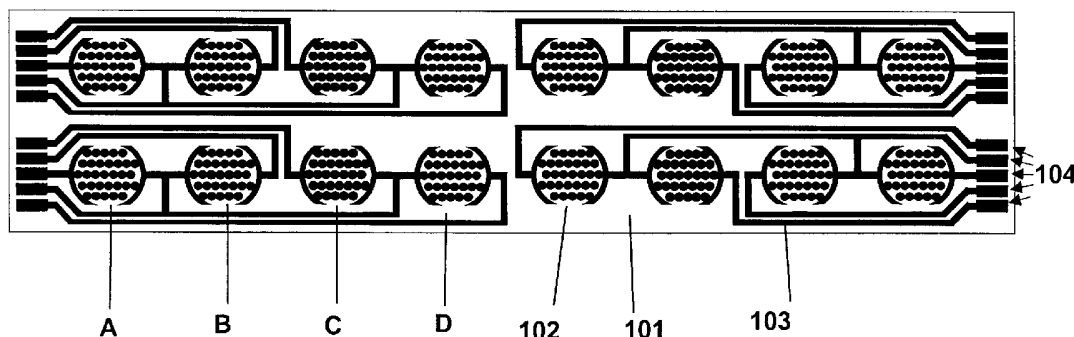
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(54) Title: REAL TIME ELECTRONIC CELL SENSING SYSTEMS AND APPLICATIONS FOR CELL-BASED ASSAYS



(57) Abstract: The present invention includes devices, systems, and methods for assaying cells using cell-substrate impedance monitoring. In one aspect, the invention provides cell-substrate impedance monitoring devices that comprise electrode arrays (102) on a nonconducting substrate (101), in which each of the arrays (102) has an approximately uniform electrode resistance across the entire array. In another aspect, the invention provides cell-substrate impedance monitoring systems comprising one or more cell-substrate monitoring devices (416) comprising multiple wells each having an electrode array (102), an impedance analyzer, a device station that connects arrays of individual wells to the impedance analyzer, and software for controlling the device station and impedance analyzer. In another aspect, the invention provides cellular assays that use impedance monitoring to detect changes in cell behavior or state.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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 US CL : 435/285.2, 287.1, 288.4; 204/403.01

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. : 435/285.2, 287.1, 288.4; 204/403.01

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

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,132,683 A (SUGIHARA et al.) 17 October 2000, see description of figure 1.	1-159
A	US 6,376,233 B1 (WOLF et al.) 23 April 2002, see description of figures 1-6.	1-159
A,P	US 6,716,620 B2 (BASHIR et al.) 06 April 2004, see description of figure 1.	1-159

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"
"A" document defining the general state of the art which is not considered to be of particular relevance	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
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
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