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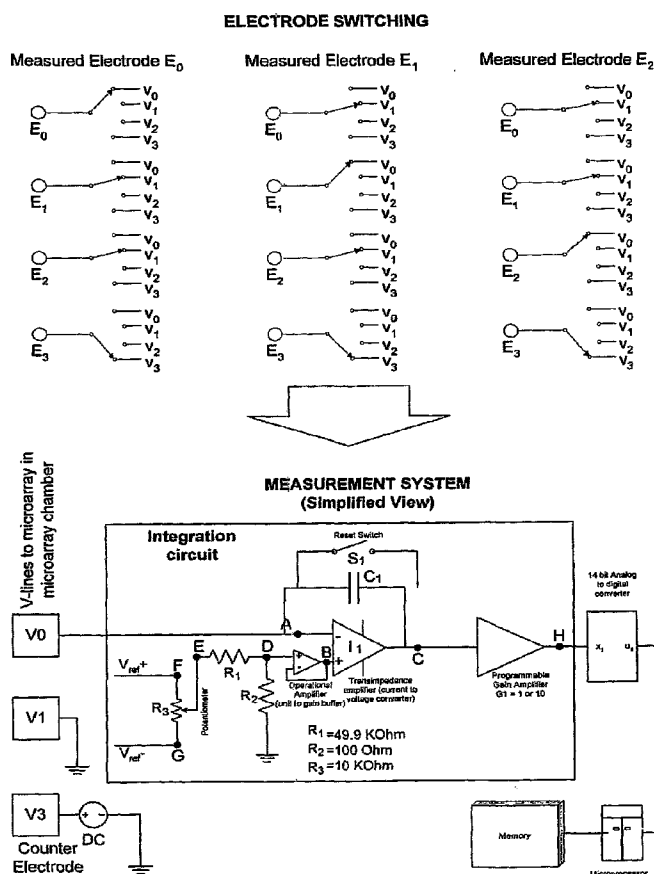
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[Continued on next page]

(54) Title: PROCESS AND APPARATUS FOR MEASURING BINDING EVENTS ON A MICROARRAY OF ELECTRODES



(57) Abstract: There is disclosed a process and apparatus for reading electrical current of electrodes on a microarray of electrodes. Those electrodes having binding events are detected by a difference in electrical current flow. Enzymes on targets catalyze the conversion of substrate to product, which is detectable by electrochemical reduction at each electrode on the microarray of electrodes. The apparatus has an integration circuit that provides a voltage output that is measured and recorded over time and used to calculate an average current flow. A potentiometer equalizes voltage at electrodes undergoing measurement compared to grounded electrodes.



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Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
27 September 2007

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/37618

A. CLASSIFICATION OF SUBJECT MATTER

IPC (8) - C25B 11/00; G01N 27/26 (2007.01)

USPC - 204/403.03

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)

USPC - 204/403.03, 193, 194, 400; 435/287.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC - 435/6, 4, 287.2 (text search)

USPC - 205/777.5 (text search)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST (USPT, PGPB, EPAB, JPAB); DialogPRO (Engineering); Google Scholar

Search term: electrode, microarray, assaying, DNA, amplifier, operational amplifier, resistor, capacitor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,759,371 A (WALKER et al.) 2 June 1998 (02.06.1998), entire document	1-25
Y	US 4,713,347 A (MITCHELL et al.) 15 December 1987 (15.12.1987), entire document	1-25
A	US 4,656,427 A (DAUPHINEE) 7 April 1987 (07.04.1987), figures 1-3	16-25

☐ Further documents are listed in the continuation of Box C.

* 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 application or patent 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

5 April 2007 (05.04.2007)

Date of mailing of the international search report

01 APR 2007

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/37618

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material

☐

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☐

on paper

☐

in electronic form

c. time of filing/furnishing

☐

contained in the international application as filed

☐

filed together with the international application in electronic form

☐

furnished subsequently to this Authority for the purposes of search

2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments: