

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
17 May 2001 (17.05.2001)

PCT

(10) International Publication Number
WO 01/35100 A3

(51) International Patent Classification⁷: **G01N 33/543**,
C12Q 1/68, G01N 27/327

(74) Agents: **TRECARTIN, Richard, F.** et al.; Flehr Hohbach
Test Albritton & Herbert LLP, 4 Embarcadero Center, Suite
3400, San Francisco, CA 94111-4187 (US).

(21) International Application Number: PCT/US00/31233

(22) International Filing Date:
13 November 2000 (13.11.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/440,371 12 November 1999 (12.11.1999) US
60/171,981 23 December 1999 (23.12.1999) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant: **CLINICAL MICRO SENSORS, INC.**
[US/US]; 757 S. Raymond Avenue, Pasadena, CA 91105
(US).

Published:

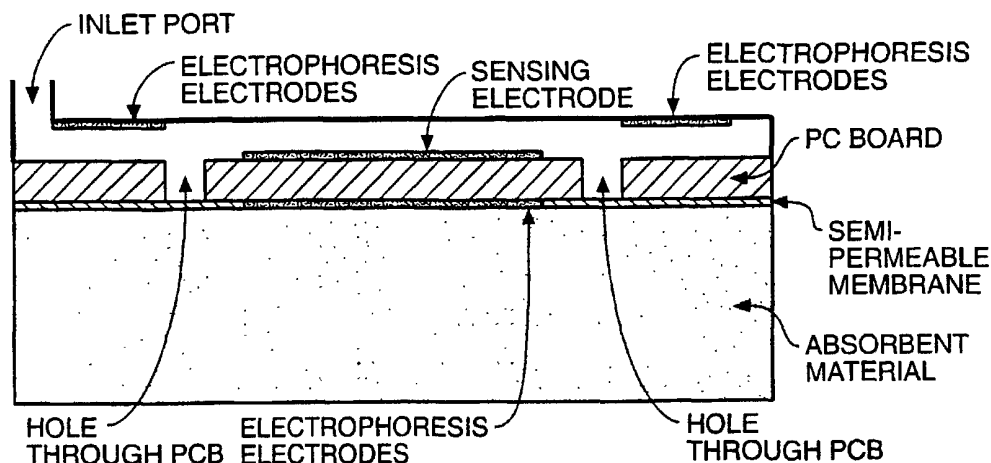
— with international search report

(72) Inventors: **BLACKBURN, Gary**; 261 N. Lone Hill
Avenue, Glendora, CA (US). **VIELMETTER, Jost, G.**;
69 South Greenwood Avenue, Pasadena, CA 91107 (US).
KAYYEM, Jon, Faiz; 1000 Buena Vista, Pasadena, CA
91030 (US).

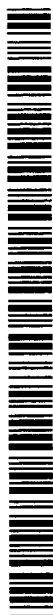
(88) Date of publication of the international search report:
3 January 2002

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: BINDING ACCELERATION TECHNIQUES FOR THE DETECTION OF ANALYTES



(57) Abstract: The invention relates to compositions and methods useful in the acceleration of binding of target analytes to capture ligands on surfaces. Detection proceeds through the use of an electron transfer moiety (ETM) that is associated with the target analyte, either directly or indirectly, to allow electronic detection of the ETM.



WO 01/35100 A3

INTERNATIONAL SEARCH REPORT

International Application No

PCT, US 00/31233

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N33/543 C12Q1/68 G01N27/327

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 G01N C12Q B01L B01J

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 99 67425 A (CLINICAL MICRO SENSORS INC) 29 December 1999 (1999-12-29) claims 1-12 ---	1-9
X	WO 99 29711 A (NANOGEN INC) 17 June 1999 (1999-06-17) claim 5 page 17, line 21 - line 23 page 72, line 20 - line 21 ---	1-9
Y	US 5 632 957 A (TU EUGENE ET AL) 27 May 1997 (1997-05-27) cited in the application column 19, line 15 - line 16 column 19, line 37 - line 40 ---	1-9
Y	---	1-9
	--- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in 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.
- *G* document member of the same patent family

Date of the actual completion of the international search

21 June 2001

Date of mailing of the international search report

04/07/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040. Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Hart-Davis, J

INTERNATIONAL SEARCH REPORT

International Application No

PCT, US 00/31233

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 99 57319 A (YU CHANGYUN ;BAMDAD CYNTHIA (US); CLINICAL MICRO SENSORS INC (US)) 11 November 1999 (1999-11-11) cited in the application claims 1-38 ---	1-9
A	US 4 787 963 A (MACCONNELL WILLIAM P) 29 November 1988 (1988-11-29) abstract ---	1-9
A	WO 98 51823 A (MOSAIC TECHNOLOGIES ;ABRAMS EZRA S (US); MUIR ANDREW R (US); BOLES) 19 November 1998 (1998-11-19) page 24, line 4 - line 29; claim 1 ---	1-9
A	WO 97 31256 A (BLOK HERMAN ;BARANY GEORGE (US); KEMPE MARIA (US); ZIRVI MONIB (US)) 28 August 1997 (1997-08-28) page 23, line 3 - line 11 -----	1-9

INTERNATIONAL SEARCH REPORT

mation on patent family members

International Application No

PCT/US 00/31233

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9967425 A	29-12-1999	AU 4709999 A EP 1090145 A	10-01-2000 11-04-2001
WO 9929711 A	17-06-1999	US 6051380 A AU 1706999 A BR 9814257 A CN 1284082 T EP 1036085 A US 6187642 B	18-04-2000 28-06-1999 03-10-2000 14-02-2001 20-09-2000 13-02-2001
US 5632957 A	27-05-1997	US 6017696 A US 5605662 A AU 702773 B AU 3507095 A BR 9508908 A CN 1164894 A EP 0871888 A FI 970957 A JP 10505497 T US 6099803 A WO 9607917 A US 6068818 A US 6225059 B US 6187642 B US 5849486 A US 6048690 A US 6051380 A AU 708677 B AU 2966195 A BR 9506035 A CA 2169852 A CN 1135220 A EP 0717749 A FI 961034 A JP 9503307 T NZ 289731 A WO 9601836 A US 6238624 B AU 692800 B AU 8125794 A AU 8522798 A AU 8522898 A BR 9407952 A CA 2175483 A CN 1141078 A EP 0727045 A FI 961843 A JP 9504910 T NZ 275962 A WO 9512808 A US 5929208 A	25-01-2000 25-02-1997 04-03-1999 27-03-1996 28-10-1997 12-11-1997 21-10-1998 07-05-1997 02-06-1998 08-08-2000 14-03-1996 30-05-2000 01-05-2001 13-02-2001 15-12-1998 11-04-2000 18-04-2000 12-08-1999 09-02-1996 14-10-1997 25-01-1996 06-11-1996 26-06-1996 02-05-1996 31-03-1997 24-09-1998 25-01-1996 29-05-2001 18-06-1998 23-05-1995 10-12-1998 10-12-1998 26-11-1996 11-05-1995 22-01-1997 21-08-1996 20-06-1996 13-05-1997 28-07-1998 11-05-1995 27-07-1999
WO 9957319 A	11-11-1999	AU 2473599 A AU 2473799 A EP 1075541 A EP 1051517 A WO 9937819 A AU 4072599 A	23-11-1999 09-08-1999 14-02-2001 15-11-2000 29-07-1999 23-11-1999

INTERNATIONAL SEARCH REPORT

mation on patent family members

International Application No

PCT/US 00/31233

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9957319 A		EP 1075549 A WO 9957317 A	14-02-2001 11-11-1999
US 4787963 A	29-11-1988	NONE	
WO 9851823 A	19-11-1998	AU 730491 B AU 7489498 A EP 0981647 A	08-03-2001 08-12-1998 01-03-2000
WO 9731256 A	28-08-1997	AU 2799797 A CA 2244891 A EP 0920440 A	10-09-1997 28-08-1997 09-06-1999