

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 February 2008 (21.02.2008)

PCT

(10) International Publication Number
WO 2008/021071 A3

(51) **International Patent Classification:**
C12Q 1/24 (2006.01) *C12M 1/00 (2006.01)*
C12M 1/34 (2006.01)

(21) **International Application Number:**
PCT/US2007/017521

(22) **International Filing Date:** 7 August 2007 (07.08.2007)

(25) **Filing Language:** English

(26) **Publication Language:** English

(30) **Priority Data:**
60/836,019 7 August 2006 (07.08.2006) US

(71) **Applicant (for all designated States except US):** PLATY-
PUS TECHNOLOGIES, LLC [US/US]; 5520 Nobel
Drive, Suite 100, Madison, WI 53711 (US).

(72) **Inventors; and**

(75) **Inventors/Applicants (for US only):** MURPHY, Christo-
pher [US/US]; 1509 Wood Lane, Madison, WI 53705
(US). ISRAEL, Barbara [US/US]; 503 Viking Road, Mt.
Horeb, WI 53572 (US). ABBOTT, Nicholas [US/US];
2120 Jefferson Street, Madison, WI 53711 (US).

(74) **Agents:** JONES, J., Mitchell et al.; Casimir Jones, S.c.,
440 Science Drive, Suite 203, Madison, WI 53711 (US).

(81) **Designated States (unless otherwise indicated, for every
kind of national protection available):** AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG,
ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL,
IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK,
LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW,
MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL,
PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA,
ZM, ZW

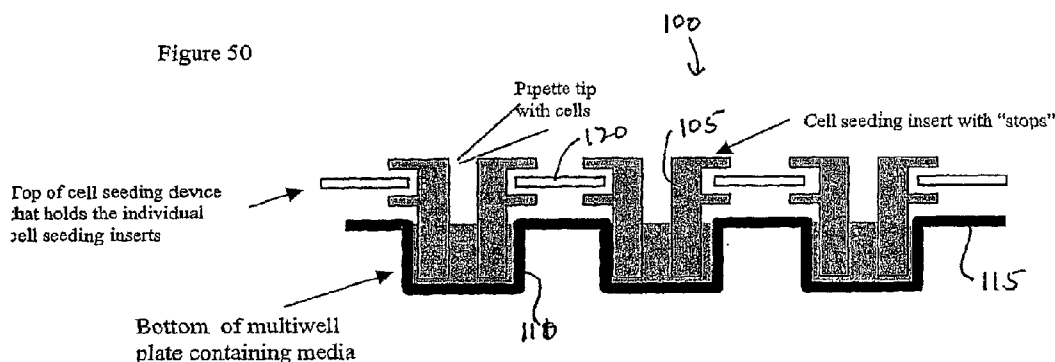
(84) **Designated States (unless otherwise indicated, for every
kind of regional protection available):** ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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:**
9 October 2008

(54) **Title:** SUBSTRATES, DEVICES, AND METHODS FOR CELLULAR ASSAYS



(57) **Abstract:** The present invention relates to the field of molecular diagnostics. In particular, the present invention provided improved substrates and methods of using liquid crystals and other biophotonically based assays for quantitating the amount of an analyte in a sample. The present invention also provides materials and methods for detecting non-specific binding of an analyte to a substrate by using a liquid crystal or other biophotonically based assay formats.



WO 2008/021071 A3

INTERNATIONAL SEARCH REPORT

International application No

PCT/US07/1752 1

A. CLASSIFICATION OF SUBJECT MATTER

IPC: C12Q 1/24(2006.01);C12M 1/34(2006.01),I/00(2006.01)

USPC: 435/30,283 1,288.4

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. : 435/30, 33, 283.1, 288.4, 288.5, 288.7, 297.5, 305.2, 808; 422/63, 65, 100, 102; 359/398; 248/3 16.8

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. |
|---------------|--|---|
| X --- Y | US 2003/0049862 A1 (HE et al.) 13 March 2003 (13.03.2003), see entire document. | 1-3, 6, 7, 9-13, 16-19, 46 ----- 4, 5, 8, 14, 15, 39-42, 45 |
| Y | US 5,14 1,718 A (CLARK et al.) 25 August 1992 (25.08.1992), see entire document. | 20, 47 |
| Y | US 6,844,184 B2 (KIM et al.) 18 January 2005 (18.01.2005), see entire document. | 21-30, 39-42, 45 |
| X --- Y | US 3,883,398 A (ONO) 13 May 1975 (13 05.1975), see entire document. | 31-33 ----- 34, 35 |

 Further documents are listed in the continuation of Box C. See patent family 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 application or patent 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

31 July 2008 (31.07.2008)

Date of mailing of the international search report

05 AUG 2008

Name and mailing address of the ISA/US

Mail Stop PCT, Ann ISA/US
Commissioner for Patents
P O Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

/WILLIAM H BEISNER/

Telephone No. 571-272-1700

DtBORAH A. THOMAS
PARALEGAL SPECIALIST

DUT

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US07/1 752 1

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| Y | US 4,612,873 A (EBERLE) 23 September 1986 (23.09. 1986), see entire document. | 34, 35 |
| X | US 5,355,215 A (SCHROEDER et al.) 11 October 1994 (11.10. 1994), see entire document. | 36 |
| --- | | ----- |
| Y | | 37-45 |
| X | US 2,639,815 A (PALUCK) 26 May 1953 (26.05.1953), see entire document. | 48 |