

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 December 2002 (12.12.2002)

PCT

(10) International Publication Number
WO 02/099982 A3

- (51) International Patent Classification⁷: **C12M 1/36**, C12N 11/16, G01N 15/06, C12Q 1/68, G02B 6/26
- (74) Agents: **BREZNER, David, J.** et al.; Flehr, Hohbach, Test, Albritton & Herbert LLP, Suite 3400, Four Embarcadero Center, San Francisco, CA 94111-4187 (US).
- (21) International Application Number: PCT/US02/06327
- (22) International Filing Date: 1 March 2002 (01.03.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/272,803 1 March 2001 (01.03.2001) US
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, 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, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, 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, GQ, GW, ML, MR, NE, SN, TD, TG).
- (63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:
US 60/272,803 (CIP)
Filed on 1 March 2001 (01.03.2001)
- (71) Applicant (*for all designated States except US*): **ILLUMINA, INC.** [US/US]; 9885 Towne Centre Drive, San Diego, CA 92121-1975 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **DICKINSON, Todd** [US/US]; 3435 Lebon Drive #1133, San Diego, CA 92122 (US). **OLIPHANT, Arnold** [US/US]; 15518 Markar Road, Poway, CA 92064-2315 (US).
- Published:
— *with international search report*
- (88) Date of publication of the international search report:
20 November 2003
- 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.*



WO 02/099982 A3

(54) Title: METHODS FOR IMPROVING SIGNAL DETECTION FROM AN ARRAY

(57) Abstract: The invention relates methods of improving signal detection from an array and methods for background subtraction in an array. The invention provides for novel array compositions including arrays with wells with different shapes, or surfaces coated with reflective or selectively absorptive coatings. In addition, the array include a signal transducer element.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/06327

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12M 1/36; C12N 11/16; G01N 15/06; C12Q 1/68; G02B 6/26
 US CL : 435/4, 174, 293.1, 287.2; 422/68.1; 385/12

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. : 435/4, 174, 293.1, 287.2; 422/68.1; 385/12

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)
 EAST, DIALOG

C. DOCUMENTS CONSIDERED TO BE RELEVANT

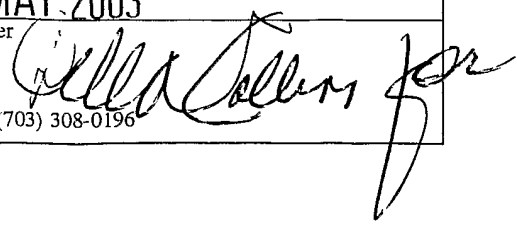
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,023,540 A (WALT et al) 08 February 2000 (08.02.2000) columns 3-4 and 11-14 and Fig. 5.	1-4, 6-10, 12-18 ----- 19-24
Y	US 5,412,087 A (MCGALL et al) 02 May 1995 (02.05.1995) columns 6 and 16.	1-24
Y	US 6,045,996 A (CRONIN et al) 04 April 2000 (04.04.2000) columns 3-6, 8 and 10.	1-24

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

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search: 18 November 2002 (18.11.2002)
 Date of mailing of the international search report: 22 MAY 2003

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks, Box PCT, Washington, D.C. 20231
 Facsimile No. (703)305-3230
 Authorized officer: BJ Forman
 Telephone No. (703) 308-0196



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/06327

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claim Nos.: 5 and 11
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
 2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
 3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

 4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
- Remark on Protest The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.