

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 October 2000 (19.10.2000)

PCT

(10) International Publication Number
WO 00/61806 A3

(51) International Patent Classification⁷: C12Q 1/68

T. [US/US]; 153 Exeter Avenue, San Carlos, CA 94070 (US).

(21) International Application Number: PCT/US00/08611

(22) International Filing Date: 31 March 2000 (31.03.2000)

(74) Agent: BASU, Shantanu; Morrison & Foerster LLP, 755 Page Mill Road, Palo Alto, CA 94304-1018 (US).

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/128,578	9 April 1999 (09.04.1999)	US
09/538,862	29 March 2000 (29.03.2000)	US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, 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, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier applications:

US	60/128,578 (CON)
Filed on	9 April 1999 (09.04.1999)
US	09/538,862 (CON)
Filed on	29 March 2000 (29.03.2000)

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): ARC-TURUS ENGINEERING, INC. [US/US]; 400 Logue Avenue, Mountain View, CA 94043-4019 (US).

Published:

— with international search report

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): BAER, Thomas, M. [US/US]; 537 Drucilla Avenue, Mountain View, CA 94040 (US). LOSSING, Ann, Bennett [JM/US]; 816A Balboa Avenue, Capitola, CA 95011 (US). KUNITAKE, Steven,

(88) Date of publication of the international search report:
20 December 2001

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.

(54) Title: GENERIC cDNA OR PROTEIN ARRAY FOR CUSTOMIZED ASSAYS

(57) Abstract: Systems and methods are described for concurrent quantification of multiple macromolecules in a flexible device. The device includes a capture location on a solid support surface. The capture location includes a capture molecule linked to the solid support surface by a first bond type. A first complexing agent including (i) a probe molecule capable of specifically binding a target molecule and (ii) a linker molecule linked by a second bond type to the probe molecule is used, such that the linker molecule can be specifically bound to the capture molecule thereby immobilizing the probe molecule on the solid support surface. The systems and methods provide advantages by allowing a user to create an array of capture locations for the concurrent quantitation of multiple macromolecules, including nucleic acids and proteins. A kit is also described, including reagents capable of linking the linker molecule to a probe molecule.

WO 00/61806 A3



INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/08611

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12Q1/68

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 C12Q

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, PAJ, MEDLINE, BIOSIS, EMBASE, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 15893 A (HOPPE HANS ULRICH ;MICULKA CHRISTIAN (DE); WINDHAB NORBERT (DE); A) 1 April 1999 (1999-04-01) the whole document ---	1-46
X	WO 98 59243 A (UNIV BOSTON) 30 December 1998 (1998-12-30) the whole document --- --/--	1-46



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.
- * & * document member of the same patent family

Date of the actual completion of the international search

21 September 2001

Date of mailing of the international search report

28/09/2001

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

Hagenmaier, S

INTERNATIONAL SEARCH REPORT

In tional Application No
PCT/US 00/08611

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	NIEMEYER C M ET AL: "OLIGONUCLEOTIDE-DIRECTED SELF-ASSEMBLY OF PROTEINS: SEMISYNTHETIC DNA-STREPTAVIDIN HYBRID MOLECULES AS CONNECTORS FOR THE GENERATION OF MACROSCOPIC ARRAYS AND THE CONSTRUCTION OF SUPRAMOLECULAR BIOCONJUGATES" NUCLEIC ACIDS RESEARCH, OXFORD UNIVERSITY PRESS, SURREY, GB, vol. 22, no. 25, 1994, pages 5530-5539, XP000645135 ISSN: 0305-1048 the whole document ---	1-46
X	WO 97 31256 A (BLOK HERMAN ;BARANY GEORGE (US); KEMPE MARIA (US); ZIRVI MONIB (US) 28 August 1997 (1997-08-28) the whole document ---	1-46
X	WO 93 25563 A (HOPE CITY ;WALLACE ROBERT BRUCE (US)) 23 December 1993 (1993-12-23) the whole document ---	1-46
X	EP 0 698 792 A (NISSUI SEIYAKU CO) 28 February 1996 (1996-02-28) the whole document ---	1-46
A	GB 2 235 689 A (ICI PLC) 13 March 1991 (1991-03-13) the whole document ---	
A	EP 0 846 776 A (VYSIS INC) 10 June 1998 (1998-06-10) the whole document ---	
P,X	WO 99 32663 A (FELDER STEPHEN ;KRIS RICHARD (US)) 1 July 1999 (1999-07-01) the whole document ---	1-46
E	WO 00 47767 A (GIBSON NEIL JAMES ;LITTLE STEPHEN (GB); ASTRAZENECA UK LTD (GB); W) 17 August 2000 (2000-08-17) the whole document ---	1-46
E	WO 00 58516 A (WHITEHEAD BIOMEDICAL INST ;AFFYMETRIX INC (US)) 5 October 2000 (2000-10-05) the whole document -----	1-46

INTERNATIONAL SEARCH REPORT

Information on patent family members

In tional Application No

PCT/US 00/08611

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9915893	A	01-04-1999	DE 19741716 A1 AU 1334099 A BR 9812490 A WO 9915893 A1 EP 1018007 A1	25-03-1999 12-04-1999 26-09-2000 01-04-1999 12-07-2000
WO 9859243	A	30-12-1998	AU 8267998 A WO 9859243 A1	04-01-1999 30-12-1998
WO 9731256	A	28-08-1997	AU 735440 B2 AU 2799797 A CA 2244891 A1 EP 0920440 A2 WO 9731256 A2	05-07-2001 10-09-1997 28-08-1997 09-06-1999 28-08-1997
WO 9325563	A	23-12-1993	CA 2115342 A1 WO 9325563 A1 AU 674127 B2 AU 2251192 A EP 0607151 A1 JP 6509946 T US 5981176 A	23-12-1993 23-12-1993 12-12-1996 04-01-1994 27-07-1994 10-11-1994 09-11-1999
EP 0698792	A	28-02-1996	EP 0698792 A1 US 5789165 A CA 2162568 A1 WO 9427150 A1	28-02-1996 04-08-1998 24-11-1994 24-11-1994
GB 2235689	A	13-03-1991	AT 144290 T AU 622349 B2 AU 6118490 A DE 69028891 D1 DE 69028891 T2 EP 0416817 A2 JP 3165431 B2 JP 3272686 A NZ 235015 A US 5525494 A	15-11-1996 02-04-1992 14-03-1991 21-11-1996 13-03-1997 13-03-1991 14-05-2001 04-12-1991 26-03-1992 11-06-1996
EP 0846776	A	10-06-1998	US 5804384 A EP 0846776 A2 JP 10185922 A	08-09-1998 10-06-1998 14-07-1998
WO 9932663	A	01-07-1999	US 6232066 B1 AU 1936699 A CN 1290306 T EP 1038033 A2 NO 20003115 A WO 9932663 A2 US 6238869 B1	15-05-2001 12-07-1999 04-04-2001 27-09-2000 21-08-2000 01-07-1999 29-05-2001
WO 0047767	A	17-08-2000	AU 2309700 A WO 0047767 A1	29-08-2000 17-08-2000
WO 0058516	A	05-10-2000	WO 0058516 A2	05-10-2000