

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
26 October 2006 (26.10.2006)

PCT

(10) International Publication Number
WO 2006/112818 A3

(51) International Patent Classification:

C12Q 1/68 (2006.01) *C07H 21/00* (2006.01)
C12N 15/10 (2006.01)

(21) International Application Number:

PCT/US2005/012570

(22) International Filing Date: 14 April 2005 (14.04.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant (for all designated States except US): **APPLERA CORPORATION** [US/US]; 850 Lincoln Centre Drive, Foster City, California 94404 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MA, Zhaochun** [CN/US]; 560 Elm Street, Apt. 302, San Carlos, California 94070 (US). **MULLAH, Khairuzzaman Bashar** [US/US]; 32804 Regents Blvd., Union City, California 94587 (US).

(74) Agents: **POWERS, Vincent M.** et al.; Applera Corporation, 850 Lincoln Centre Drive, Foster City, CA 94404 (US).

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

(88) Date of publication of the international search report:

25 January 2007

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: 3' MODIFIED OLIGONUCLEOTIDES CONTAINING PSEUDOISOCYTOSINE NUCLEOBASE DERIVATIVES AND APPLICATIONS THEREOF AS PRIMERS OR PROBES

(57) Abstract: Disclosed, among other things, are primers containing certain modified nucleobases in the 3' terminal region of the primers that provide reduced formation of primer-dimers during amplification reactions, and various methods of use thereof.



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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2005/012570

A. CLASSIFICATION OF SUBJECT MATTER

INV. C12Q1/68 C12N15/10 C07H21/00

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)

C12Q C12N C07H

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, CHEM ABS Data, BIOSIS, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ONO A ET AL: "TRIPLEX FORMATION OLIGONUCLEOTIDES CONTAINING 2'-O-METHYLPSEUDOISOCYTIDINE IN SUBSTITUTION FOR 2'DEOXYCYTIDINE" JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, AMERICAN CHEMICAL SOCIETY, WASHINGTON, DC, US, vol. 113, 1991, pages 4032-4033, XP002047549 ISSN: 0002-7863 the whole document in particular octamer 5'-TTT1TTT3' ----- -/-	1-20



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 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

27 October 2006

Date of mailing of the international search report

09/11/2006

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

Gohlke, Pascale

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2005/012570

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ONO A ET AL: "TRIPLEX FORMATION OF AN OLIGONUCLEOTIDE CONTAINING 2'-O-METHYLPSEUDOISOCYTIDINE WITH A DNA DUPLEX AT NEURAL PH" JOURNAL OF ORGANIC CHEMISTRY, AMERICAN CHEMICAL SOCIETY. EASTON, US, vol. 57, no. 11, 1992, pages 3225-3230, XP000653514 ISSN: 0022-3263 abstract in particular 16-mer 5'-TTTTT1TTTT111111T3'	1-20
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A	EP 0 866 071 A (F. HOFFMANN-LA ROCHE AG) 23 September 1998 (1998-09-23) page 3, lines 12-42	22-44
A	CHIN, TSUNG-MEI ET AL: "'Paper-Clip' Type Triple Helix Formation by 5'-d-(TC)3Ta(CT)3Cb(AG)3 (a and b = 0-4) as a Function of Loop Size with and without the Pseudoisocytosine Base in the Hoogsteen Strand" BIOCHEMISTRY, 39(40), 12457-12464 CODEN: BICHAW; ISSN: 0006-2960, 2000, XP002386304 figure 2; table 1	1-20, 22-44
Y	abstract	45-91
A	US 2003/165935 A1 (VANN CHARLES S ET AL) 4 September 2003 (2003-09-04) paragraph [0041]; claim 5	1-18, 22-44
Y	paragraph [0041]; claim 5	19-21, 45-91
A	WO 01/12852 A (PE CORPORATION) 22 February 2001 (2001-02-22) page 4, lines 6-26; claims 1,14 page 17, lines 25-29	1-20, 22-44
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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2005/012570

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2004/111072 A (APPLERA CORPORATION; LIVAK, KENNETH, J; MULLAH, K., BASHAR) 23 December 2004 (2004-12-23) abstract page 23, line 16 - page 24, line 2 page 36, lines 22-30	1-18, 22-44
Y	pages 36-39	19-21, 45-91
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Y	NIELSEN P.E.: "Targeting Double Stranded DNA with Peptide Nucleic Acid (PNA)" CURRENT MEDICINAL CHEMISTRY, vol. 8, 2001, pages 545-549, XP002404774 the whole document	45-91
Y	US 2004/171047 A1 (DAHL GARY A [US] ET AL) 2 September 2004 (2004-09-02) claim 1	45-91
Y	US 5 686 243 A (ROYER GARFIELD P [US] ET AL) 11 November 1997 (1997-11-11) claim 1	45-91

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/012570

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

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

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

2. ☐ Claims 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. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional sheet

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-17(partly), 18, 19-20(partly), 22-44

3' modified polynucleotide primers and the methods of primer extension using these primers.

2. claims: 1-17(partly), 19-20 (partly), 21, 45-91

3' modified polynucleotide probes and the methods of oligonucleotide ligation and/or of detecting a target polynucleotide sequence using these probes

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2005/012570

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