(19) World Intellectual Property Organization International Bureau

rnauonai Bureau



(43) International Publication Date 24 April 2008 (24.04.2008)

PCT

(10) International Publication Number $WO\ 2008/046602\ A3$

- (51) International Patent Classification: *C12Q 1/68* (2006.01)
- (21) International Application Number:

PCT/EP2007/008997

- (22) International Filing Date: 17 October 2007 (17.10.2007)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11/583,606

18 October 2006 (18.10.2006) US

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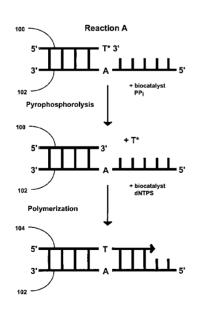
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, 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).

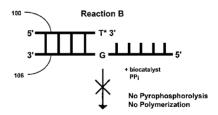
Declaration under Rule 4.17:

 as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: 2'-TERMINATOR RELATED PYROPHOSPHOROLYSIS ACTIVATED POLYMERIZATION





(57) Abstract: The present invention provides reaction mixtures that include blocked oligonucleotides comprising 2'-terminator nucleotides. The blocked oligonucleotides are rendered extendible when the 2'-terminator nucleotides are removed from the oligonucleotides, e.g., via pyrophosphorolysis. The reaction mixtures can be used in various nucleic acid polymerization and/or amplification assays, among many other applications. In addition to reaction mixtures, the invention also provides related methods and reaction mixtures.

WO 2008/046602 A3



Published:

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

26 June 200

- 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

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2007/008997 A. CLASSIFICATION OF SUBJECT MATTER INV. 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) 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, EMBASE, WPI Data, CHEM ABS Data C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. US 5 532 130 A (ALUL RUSHDI [US]) 1,2,4-7,2 July 1996 (1996-07-02) 24,25 column 7, lines 58; column 9, table; example 1; claim 4 χ WO 2005/005667 A (ROCHE DIAGNOSTICS GMBH 1-22,24, [DE]; HOFFMANN LA ROCHE [CH]; GELFAND DAVID H [) 20 January 2005 (2005-01-20) page 16, [46]; pages 26-32; figures; pages 35-44; page 45, [130]; pages 51-54; examples 1-2 X WO 2005/118608 A (ASM SCIENT INC [GB]; 1,2, PIEPENBURG OLAF [GB]; STEMPLE DEREK L 6-11,13[GB]; ARMES) 15 December 2005 (2005-12-15) 14,24,25 example 7; claims X - 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 filling 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 "E" earlier document but published on or after the international "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 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) "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 docudocument referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled in the art. document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 18 April 2008 28/04/2008 Name and mailing address of the ISA/ Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL. – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Hennard, Christophe

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2007/008997

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT								
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.						
X	ZHANG J ET AL: "Proofreading genotyping assays mediated by high fidelity exo<+> DNA polymerases" TRENDS IN BIOTECHNOLOGY, ELSEVIER PUBLICATIONS, CAMBRIDGE, GB, vol. 23, no. 2, February 2005 (2005-02), pages 92-96, XP004718855 ISSN: 0167-7799 page 93, first column - page 94, second column	23						
P,X	WO 2007/075967 A (ROCHE DIAGNOSTICS GMBH [DE]; HOFFMANN LA ROCHE [CH]; GELFAND DAVID H [) 5 July 2007 (2007-07-05) claims; examples	1-22,24, 25						
Ρ,Χ	US 2007/154914 A1 (GELFAND DAVID H [US] ET AL) 5 July 2007 (2007-07-05) Claims	1-25						
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2007/008997

Patent document cited in search report		Publication date		Patent family member(s)	Publication date	
	US 5532130	Α	02-07-1996	WO	9800564 A1	08-01-1998
	WO 2005005667	Α.	20-01-2005	CA EP JP	2530785 A1 1641943 A2 2007527217 T	20-01-2005 05-04-2006 27-09-2007
	WO 2005118608	A	15-12-2005	AU CA EP JP	2005250239 A1 2569491 A1 1753774 A2 2008501679 T	15-12-2005 15-12-2005 21-02-2007 24-01-2008
	WO 2007075967	A	05-07-2007	NON	·	
	US 2007154914	A1	05-07-2007	US	2007219361 A1	20-09-2007