

(43) International Publication Date
8 July 2010 (08.07.2010)(10) International Publication Number
WO 2010/077366 A3

PCT

(51) International Patent Classification:

C12Q 1/68 (2006.01) G01N 33/50 (2006.01)
C12Q 1/25 (2006.01)

(21) International Application Number:

PCT/US2009/006762

(22) International Filing Date:

31 December 2009 (31.12.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/142,290 2 January 2009 (02.01.2009) US
61/143,111 7 January 2009 (07.01.2009) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

[Continued on next page]

(54) Title: EXPONENTIAL ISOTHERMAL SELF-SUSTAINED REPLICATION OF AN RNA ENZYME

(57) Abstract: This invention provides nucleic acid molecules that catalyze their own replication and undergo exponential amplification at a constant temperature and in the absence of proteins or other biological components, such as those employed in other amplification reactions, e.g., proteins including DNA or RNA polymerase and a method of detect a selected molecule using said nucleic acid.

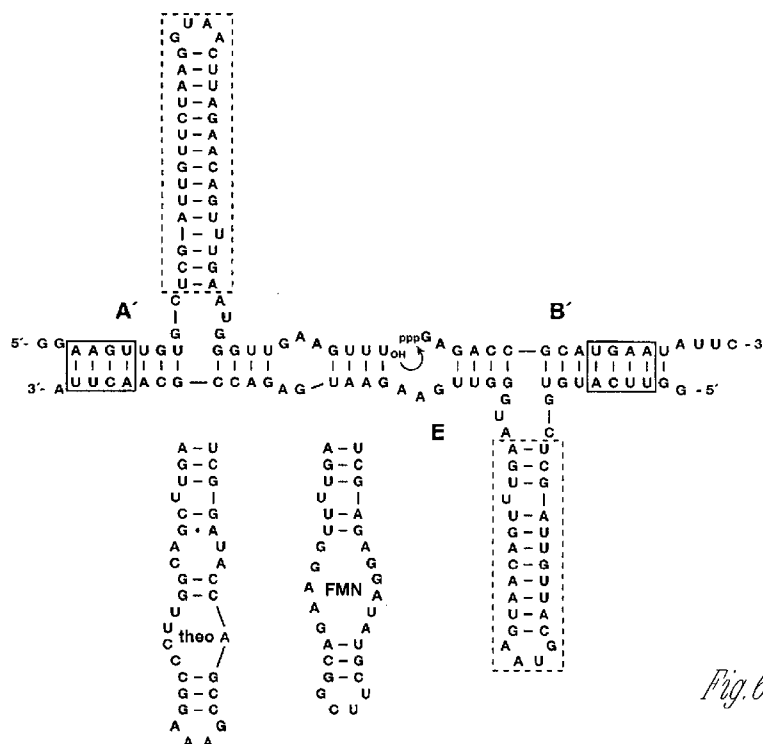


Fig. 6



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- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*
- *with sequence listing part of description (Rule 5.2(a))*
- (88) Date of publication of the international search report:**
28 October 2010

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/006762**A. CLASSIFICATION OF SUBJECT MATTER***C12Q 1/68(2006.01)i, C12Q 1/25(2006.01)i, G01N 33/50(2006.01)i*

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: C12Q, G01N

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)

e-KOPASS, PubMed(Keywords: cross-catalytic, exponential replication, ligand binding, ribozyme)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	LAM, B. J. et al., Autocatalytic aptazymes enable ligand-dependent exponential amplification of RNA. Nat. Biotechnol., 22 February 2009(Epub.), Vol. 27, No. 3, pp. 288-292. See the whole document, especially abstract and figs. 1-3.	1-28
PX	JOYCE, G. F., Evolution in an RNA World. Cold Spring Harb. Symp. Quant. Biol., 10 August 2009(Epub.), Vol. 74, pp. 17-23. See the whole document, especially abstract and page 6.	1-28
X — A	KIM, D. E. et al., Cross-catalytic replication of an RNA ligase ribozyme. Chem. & Biol., November 2004, Vol. 11, pp. 1505-1512. See summary and figs 2, 3.	16, 23-28 ----- 1-15, 17-22
X — A	PAUL, N. et al., A self-replicating ligase ribozyme. PNAS, 1 October 2002, Vol. 99, No. 20, pp. 12733-12740. See abstract and figs. 1, 2.	16, 23-28 ----- 1-15, 17-22

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

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Date of the actual completion of the international search

01 SEPTEMBER 2010 (01.09.2010)

Date of mailing of the international search report

02 SEPTEMBER 2010 (02.09.2010)

Name and mailing address of the ISA/KR

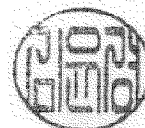
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gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2009/006762

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- A	KIM, K. S. et al., Amplification of an RNA ligase ribozyme under alternating temperature conditions. FEBS Letters, 14 July 2008(Epub.), Vol. 582, pp. 2745-2752. See abstract and figs. 1-3.	23-28 ----- 1-22