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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
12 November 2009 (12.11.2009)

PCT

(10) International Publication Number
WO 2009/137778 A3

(51) International Patent Classification:
C12N 15/31 (2006.01) *C12N 15/09* (2006.01)

(21) International Application Number:
PCT/US2009/043314

(22) International Filing Date:
8 May 2009 (08.05.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/051,515 8 May 2008 (08.05.2008) 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, 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, ST, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, 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 (Art. 21(3))*

— *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))*

(88) Date of publication of the international search report:
17 June 2010

WO 2009/137778 A3

(54) Title: METHODS AND COMPOSITIONS FOR GENETICALLY ENGINEERING CLOSTRIDIA SPECIES

(57) Abstract: The present invention relates to methods and compositions for engineering Clostridia species. In particular, embodiments of the present invention relate to the expression of recombinant resolvase proteins in Clostridia species.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/043314

A. CLASSIFICATION OF SUBJECT MATTER

C12N 15/31(2006.01)i, C12N 15/09(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 as above

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Utility models and applications for Utility models
Japanese Utility models and application for Utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS (KIPO internal), Google, NCBI PubMed (clostridi*, recU, resolvase, and similar terms.)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- A	E. P. C. ROCHA, et al. "Comparative and evolutionary analysis of the bacterial homologous recombination systems." In PLoS Genetics Vol.1(2):e15 (August 2005). See figure 2. Table 1.	1-17 ------- 18-22
A ------ X	D. Lyras, et al. "The large resolvase TnpX is the only transposon-encoded protein required for transposition of the Tn4451/3 family of integrative mobilizable elements." In Molecular Microbiology. Vol.51(6):1787-1800 (2004). See the abstract, figure 1, table 2, page 1791, Experimental procedure.	1-17 ------- 18-22
A ------ X	P. K. CRELLIN AND J. I. ROOD. "The resolvase/invertase domain of the site-specific recombinase TnpX is functional and recognizes a target sequence that resembles the junction of the circular form of the Clostridium perfringens transposon Tn4451." In Journal of Bacteriology. Vol.179(16):5148-5156 (August 1997). See the abstract, tables 1-2, figure 1, Materials and Methods.	1-17 ------- 18-22

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

* Special categories of cited documents:
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Date of the actual completion of the international search	Date of mailing of the international search report
24 APRIL 2010 (24.04.2010)	**26 APRIL 2010 (26.04.2010)**

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Form PCT/ISA/210 (second sheet) (July 2008)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/043314

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A ------ X	N. MCGREGOR, et al. "The structure of Bacillus subtilis RecU Holliday junction resolvase and its role in substrate selection and sequence-specific cleavage." In Structure. Vol.13:1341-1351 (September 2005). See the abstract, page 1349, left column, first paragraph.	1-17 ------- 18-22
A	T. Garnier, et al. "Molecular characterization of the resolvase gene, res, carried by a multicopy plasmid from Clostridium perfringens: common evolutionary origin for prokaryotic site-specific recombinases." In Molecular Microbiology. Vol.1(3):371-376 (1987). See the abstract, page 371.	1-22