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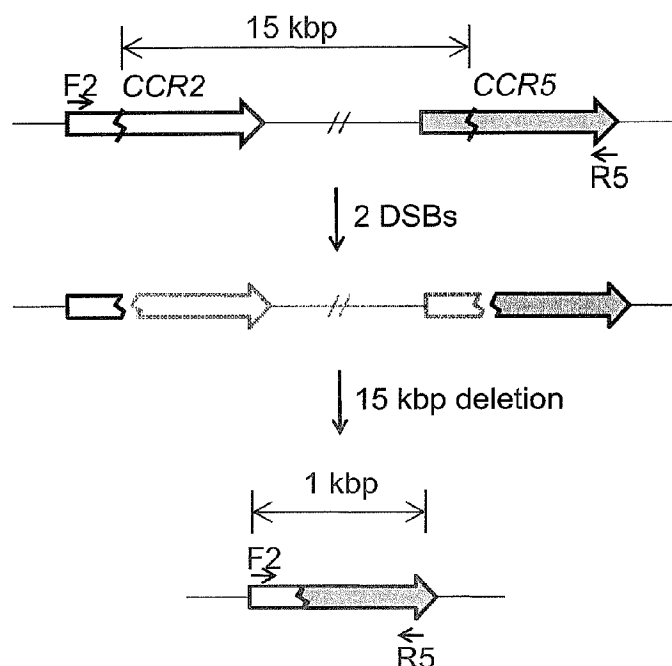
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[Continued on next page]

(54) Title: TARGETED GENOMIC REARRANGEMENTS USING SITE-SPECIFIC NUCLEASES

[Fig. 1]



(57) Abstract: The present invention relates to a method for genomic DNA rearrangements, and more particularly, to a method for deletion, duplication, inversion, replacement, or rearrangement of genomic DNA using pairs of site-specific nucleases targeting two or more sites in the genome, a cell in which genomic DNA is deleted, duplicated, inverted, replaced, or rearranged by the same method, and a method for expressing the site-specific nucleases in cells. Further, the present invention relates to a method for inserting synthetic DNA molecules into the genome using site-specific nucleases targeting a pre-determined site in the genome, a cell in which DNA insertion occurs by the same method, and a method for expressing the site-specific nucleases in cells.



TM), European (AL, 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).

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- *with sequence listing part of description (Rule 5.2(a))*

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A. CLASSIFICATION OF SUBJECT MATTER*C12N 15/10(2006.01)i, C12N 9/10(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)

C12N 15/10; C12N 15/62

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 applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal), Pubmed

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CAI, C. Q. et al. 'Targeted transgene integration in plant cells using designed zinc finger nucleases' Plant Molecular Biology. Vol. 69(6), pp. 699-709 (27 December 2008) See p. 703, right col. line 1~ p. 706, right col. line 12.	1-16
PX	LEE, H. J. et al. 'Targeted chromosomal deletions in human cells using zinc finger nucleases' Genome Research. Vol. 20(1), pp. 81-89 (1 December 2009) See the whole document.	1-16
T	SÖLLÖ, C. et al. 'Autonomous zinc-finger nuclease pairs for targeted chromosomal deletion' Nucleic Acids Research. Vol. 38(22), pp. 8269-8276 (16 August 2010) See the abstract.	1-16
A	WO 2007-014181 A2 (JOHNS HOPKINS UNIVERSITY et al.) 01 February 2007 See the abstract.	1-16



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2010/003786

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of :

a. a sequence listing filed or furnished

☐

on paper

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in electronic form

b. time of filing or furnishing

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contained in the international application as filed

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filed together with the international application in electronic form

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furnished subsequently to this Authority for the purposes of search

2. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2010/003786Patent document
cited in search reportPublication
datePatent family
member(s)Publication
date

WO 2007-014181 A2

01.02.2007

US 2010-055793 A1

04.03.2010

WO 2007-014181 A3

31.05.2007

WO 2007-014181 A3

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