

Title (en)
MASSIVELY MULTIPLEXED HOMOLOGOUS TEMPLATE REPAIR FOR WHOLE-GENOME REPLACEMENT

Title (de)
REPARATUR VON MASSIV MULTIPLEXIERTEM HOMOLOGEM TEMPLAT FÜR VOLLGENOMERSATZ

Title (fr)
RÉPARATION HOMOLOGUE DE MATRICE MASSIVEMENT MULTIPLEXÉE POUR REMPLACER LE GÉNOME ENTIER

Publication
EP 3541937 A4 20200624 (EN)

Application
EP 17871613 A 20171117

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• US 201762508259 P 20170518
• US 201762554738 P 20170906
• US 2017062430 W 20171117

Abstract (en)
[origin: WO2018094291A1] Disclosed are systems and methods for whole-genome replacement through a massively multiplexed homologous template repair process. Disclosed aspects include a method of substantially changing a DNA sequence of an organism, the method including one or more of the following steps: determining a desired DNA sequence, the desired DNA sequence being a DNA sequence to which it is desired that the DNA sequence of the organism be substantially changed; preparing a treatment configured to cause the organism DNA sequence to be substantially changed to the desired DNA sequence; applying the treatment to the organism; wherein the treatment is configured to cause the organism DNA sequence to be substantially changed to the desired DNA sequence by causing, at each of multiple sites in the organism DNA sequence, genetic code at the site to be substantially changed to genetic code at a corresponding site in the desired DNA sequence; each of the multiple sites in the organism DNA sequence is a respective sub-sequence of the organism DNA sequence; applying the treatment includes delivering to the organism at least one dose; and each dose includes respective change agent material that causes the changing of the genetic code at a respective plurality of the multiple sites. In certain embodiments, the DNA sequence of the organism is a whole-genome DNA sequence of the organism, and the desired DNA sequence is substantially the organism's germline whole-genome DNA sequence, an intentionally modified version of the organism's germline whole-genome DNA sequence, or a whole-genome DNA sequence of another organism.

IPC 8 full level
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CPC (source: EP US)
C12N 15/102 (2013.01 - EP); **G16B 30/00** (2019.02 - EP US)

Citation (search report)
• [Y] F. J. ISAACS ET AL: "Precise Manipulation of Chromosomes in Vivo Enables Genome-Wide Codon Replacement", SCIENCE, vol. 333, no. 6040, 15 July 2011 (2011-07-15), pages 348 - 353, XP055208347, ISSN: 0036-8075, DOI: 10.1126/science.1205822
• [YP] GLEB KUZNETSOV ET AL: "Optimizing complex phenotypes through model-guided multiplex genome engineering", GENOME BIOLOGY, vol. 18, no. 1, 25 May 2017 (2017-05-25), XP055693069, DOI: 10.1186/s13059-017-1217-z
• [AP] TAKAMARU ISHIZU ET AL: "Targeted Genome Replacement via Homology-directed Repair in Non-dividing Cardiomyocytes", SCIENTIFIC REPORTS, vol. 7, no. 1, 24 August 2017 (2017-08-24), XP055693490, DOI: 10.1038/s41598-017-09716-x
• See also references of WO 2018094291A1

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