SINGLE CONJUGATIVE VECTOR FOR GENOME EDITING BY RNA-GUIDED TRANSPOSITION

Tech ID: 31691 / UC Case 2020-057-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20230068726	03/02/2023	2020-057
European Patent Office	Published Application	4097225 A0	12/07/2022	2020-057

BRIEF DESCRIPTION

The inventors have constructed conjugative plasmids for intra- and inter-species delivery and expression of RNA-guided CRISPR-Cas transposases for organism- and site-specific genome editing by targeted transposon insertion. This invention enables integration of large, customizable DNA segments (encoded within a transposon) into prokaryotic genomes at specific locations and with low rates of off-target integration.

SUGGESTED USES

Microbial strain development for heterologous expression of large DNA segments; integrating large segments of DNA; integrating biosynthetic gene clusters; integrating polysaccharide utilization loci; genome minimization; genome reorganization; genome editing in microbial communities; genome editing in microbial isolates; genome editing in microbes that are recalcitrant to plasmid transformation by heat shock or electroporation; genome editing in strains in which homologous recombination or other repair-based editing is not feasible.

ADVANTAGES

RELATED MATERIALS

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INVENTORS

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OTHER INFORMATION

KEYWORDS

CRISPR-Cas, conjugative plasmids, genome editing, transposon

CATEGORIZED AS

» **Agriculture & Animal Science**
» Animal Science
» Other
» **Biotechnology**
» Genomics
» **Environment**
» Other
» **Engineering**
» Engineering
» Other
» **Materials & Chemicals**
» Biological
» **Medical**
» Gene Therapy
» **Nanotechnology**
» NanoBio
» **Research Tools**

» Other

» **Veterinary**

» Other

RELATED CASES

2020-057-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- COMPOSITIONS AND METHODS FOR IDENTIFYING HOST CELL TARGET PROTEINS FOR TREATING RNA VIRUS INFECTIONS
- Genome Editing via LNP-Based Delivery of Efficient and Stable CRISPR-Cas Editors
- Type III CRISPR-Cas System for Robust RNA Knockdown and Imaging in Eukaryotes
- Cas12-mediated DNA Detection Reporter Molecules
- Improved guide RNA and Protein Design for CasX-based Gene Editing Platform
- Cas13a/C2c2 - A Dual Function Programmable RNA Endoribonuclease
- RNA-directed Cleavage and Modification of DNA using CasY (CRISPR-CasY)
- CasX Nickase Designs, Tans Cleavage Designs & Structure
- In Vivo Gene Editing Of Tau Locus Via Liponanoparticle Delivery
- A Dual-RNA Guided CasZ Gene Editing Technology
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF (“Cas-VariPhi”)
- Modifications To Cas9 For Passive-Delivery Into Cells
- A Protein Inhibitor Of Cas9
- RNA-directed Cleavage and Modification of DNA using CasX (CRISPR-CasX)
- Compositions and Methods for Genome Editing
- Split-Cas9 For Regulatable Genome Engineering
- Methods to Interfere with Prokaryotic and Phage Translation and Noncoding RNA
- CRISPR CASY COMPOSITIONS AND METHODS OF USE
- Improved Cas12a Proteins for Accurate and Efficient Genome Editing
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF
- Engineered/Variant Hyperactive CRISPR CasPhi Enzymes And Methods Of Use Thereof
- Engineering Cas12a Genome Editors with Minimized Trans-Activity
- Methods Of Use Of Cas12L/CasLambda In Plants
- Type V CRISPR/CAS Effector Proteins for Cleaving ssDNA and Detecting Target DNA
- THERMOSTABLE RNA-GUIDED ENDONUCLEASES AND METHODS OF USE THEREOF (GeoCas9)
- Structure-Guided Methods Of Cas9-Mediated Genome Engineering
- Endoribonucleases For Rna Detection And Analysis
- Efficient Site-Specific Integration Of New Genetic Information Into Human Cells
- CRISPR-Cas Effector Polypeptides and Methods of Use Thereof
- Class 2 CRISPR/Cas COMPOSITIONS AND METHODS OF USE
- Compositions and Methods of Use for Variant Csy4 Endoribonucleases
- Identification Of Sites For Internal Insertions Into Cas9
- Methods and Compositions for Controlling Gene Expression by RNA Processing

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