

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

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
- ▶ Tissue-Specific Genome Engineering Using CRISPR-Cas9
- ▶ Type III CRISPR-Cas System for Robust RNA Knockdown and Imaging in Eukaryotes
- ▶ Cas9 Variants With Altered DNA Cleaving Activity
- ▶ Cas12-mediated DNA Detection Reporter Molecules
- ▶ Improved guide RNA and Protein Design for CasX-based Gene Editing Platform
- ▶ Compositions and Methods for Delivering Molecular Cargo to Cells
- ▶ Cas13a/C2c2 - A Dual Function Programmable RNA Endoribonuclease
- ▶ Miniature Type VI CRISPR-Cas Systems and Methods of Use
- ▶ RNA-directed Cleavage and Modification of DNA using CasY (CRISPR-CasY)
- ▶ Generation of Chimeric RNA with Type III CRISPR-Cas
- ▶ CasX Nickase Designs, Tans Cleavage Designs & Structure
- ▶ In Vivo Gene Editing Of Tau Locus Via Liponnanoparticle Delivery
- ▶ Methods and Compositions for Modifying a single stranded Target Nucleic Acid
- ▶ A Dual-RNA Guided CasZ Gene Editing Technology
- ▶ A Protein Inhibitor Of Cas9
- ▶ RNA-directed Cleavage and Modification of DNA using CasX (CRISPR-CasX)
- ▶ Compositions and Methods for Genome Editing
- ▶ IS110 and IS1111 Family RNA-Guided Transposons
- ▶ Variant Cas12a Protein Compositions and Methods of Use
- ▶ In Vitro and In Vivo Genome Editing by LNP Delivery of CRISPR Ribonucleoprotein
- ▶ 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
- ▶ 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)
- ▶ Variant TnpB and wRNA Proteins
- ▶ Efficient Site-Specific Integration Of New Genetic Information Into Human Cells
- ▶ Class 2 CRISPR/Cas COMPOSITIONS AND METHODS OF USE
- ▶ Compositions and Methods of Use for Variant Csy4 Endoribonucleases
- ▶ Immune Cell-Mediated Intercellular Delivery Of Biomolecules
- ▶ Methods and Compositions for Controlling Gene Expression by RNA Processing