SINGLE CONJUGATIVE VECTOR FOR GENOME EDITING BY RNA-GUIDED TRANSPOSITION

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

PATENT STATUS

Patent Pending

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

INVENTORS

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OTHER INFORMATION

KEYWORDS

CRISPR-Cas, conjugative plasmids, genome editing, transposon

CATEGORIZED AS

Agriculture & Animal Science
Animal Science
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

- Methods and Compositions for Using Argonaute to Modify a Single-Stranded Target Nucleic Acid
- COMPOSITIONS AND METHODS FOR IDENTIFYING HOST CELL TARGET PROTEINS FOR TREATING RNA VIRUS INFECTIONS
- 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
- Cas13a/C2c2 - A Dual Function Programmable RNA Endoribonuclease
- Methods For High Signal-To-Noise Imaging Of Chromosomal Loci In Cells Using Fluorescent Cas9
- A Dual-RNA Guided Cas2 Gene Editing Technology
- MODULATORS OF TYPE VI-D CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF ("Cas-VanPhi")
- A Protein Inhibitor Of Cas9
- Small Cas9 Protein Inhibitor
- Split-Cas9 For Regulatable Genome Engineering
- Decorating Chromatin for Precise Genome Editing Using CRISPR
- Optimized Virus-like Particles for Cas9 RNP & Transgene/HDR Template Delivery
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF ("Cas-Theta")
- COMPOSITIONS AND METHODS FOR INCREASING HOMOLOGY-DIRECTED REPAIR
- CRISPR CASY COMPOSITIONS AND METHODS OF USE
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF ("Cas-Omega")
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF
- Engineered/Variant Hyperactive CRISPR CasPhi Enzymes And Methods Of Use Thereof
- 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 (CasGamma)
- 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
- Chimeric Cas9 Variants With Novel Engineered Enzymatic Activities
- Small Molecule Assisted Cell Penetrating Cas9 RNP Delivery
- Methods and Compositions for Controlling Gene Expression by RNA Processing