MODIFICATIONS TO CAS9 FOR PASSIVE-DELIVERY INTO CELLS

Tech ID: 25286 / UC Case 2016-016-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,118,194	09/14/2021	2016-016

BRIEF DESCRIPTION

RNA-mediated adaptive immune systems in bacteria and archaea rely on Clustered Regularly Interspaced Short Palindromic Repeat (CRISPR) genomic loci and CRISPR-associated (Cas) proteins that function together to provide protection from invading viruses and plasmids. In Type II CRISPR-Cas systems, the Cas9 protein functions as an RNA-guided endonuclease that uses a dual-guide RNA consisting of crRNA and trans-activating crRNA (tracrRNA) for target recognition and cleavage by a mechanism involving two nuclease active sites that together generate double-stranded DNA breaks (DSBs). Thus, the Cas9 system provides a facile means of modifying genomic information.

UC Berkeley researchers have developed modified site-directed modifying polypeptides and ribonucleoproteins comprising the modified polypeptides. As the modified site-directed modifying polypeptides are modified for passive entry into target cells, the polypeptides are useful in a variety of methods for target nucleic acid modification.

SUGGESTED USES

- Genome editing
- Gene therapy

ADVANTAGES

- Crosses the plasma membrane of a eukaryotic cell without the need for any additional agent (e.g., small molecule agents, lipids, etc.)

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

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INVENTORS

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OTHER INFORMATION

KEYWORDS

CRISPR, Cas9, gene, genome editing

CATEGORIZED AS

- **Biotechnology**
  - Genomics
- **Medical**
  - Gene Therapy
  - Research Tools
  - Nucleic Acids/DNA/RNA

RELATED CASES

2016-016-0

- 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”)
- 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
- NANOPORE MEMBRANE DEVICE AND METHODS OF USE THEREOF
- Methods to Interfere with Prokaryotic and Phage Translation and Noncoding RNA
- CRISPR CASY COMPOSITIONS AND METHODS OF USE
- Single Conjugative Vector for Genome Editing by RNA-guided Transposition
- 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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