MODIFICATIONS TO CAS9 FOR PASSIVE-DELIVERY INTO CELLS

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

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.)

INVENTORS

- Doudna, Jennifer A.

OTHER INFORMATION

KEYWORDS
- CRISPR, Cas9, gene, genome editing

CATEGORIZED AS

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

RELATED CASES

2016-016-0

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")
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 Cay4 Endoribonucleases
Identification Of Sites For Internal Insertions Into Cas9
Methods and Compositions for Controlling Gene Expression by RNA Processing