CAS9 VARIANTS WITH ALTERED DNA CLEAVING ACTIVITY

Tech ID: 24492 / UC Case 2015-054-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,392,607	08/27/2019	2015-054

BRIEF DESCRIPTION

RNA-programmed Cas9 has proven to be a versatile tool for genome engineering in multiple cell types and organisms. Guided by a dual-RNA complex or a chimeric single-guide RNA, Cas9 (or variants of Cas9) can generate site-specific double-stranded DNA breaks (DSBs) or single-stranded breaks (SSBs) within target nucleic acids. Target nucleic acids can include double-stranded DNA (dsDNA) and single-stranded DNA (ssDNA) as well as RNA. When cleavage of a target nucleic acid occurs within a cell, the break in the target nucleic acid can be repaired by non-homologous end joining or homology directed repair. UC Berkeley researchers have created new Cas9 protein variants, nucleic acids encoding the variant Cas9 proteins, and host cells comprising the nucleic acids.

SUGGESTED USES

» Genome editing

» Gene therapy

ADVANTAGES

» Enhances CRISPR targeting specificity

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OTHER INFORMATION

KEYWORDS

CRISPR, Cas9, variants, genome, gene

CATEGORIZED AS

» **Biotechnology**

» Genomics

» **Medical**

» Gene Therapy

» Research Tools

» **Research Tools**

» Nucleic Acids/DNA/RNA

RELATED CASES

2015-054-0

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
- 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
- Miniature Type VI CRISPR-Cas Systems and Methods of Use
- 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
- Methods and Compositions for Modifying a single stranded Target Nucleic Acid
- 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
- IS110 and IS1111 Family RNA-Guided Transposons
- Methods to Interfere with Prokaryotic and Phage Translation and Noncoding RNA
- 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
- 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
- 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
- Methods and Compositions for Controlling Gene Expression by RNA Processing

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