A PROTEIN INHIBITOR OF CAS9

Tech ID: 29638 / UC Case 2019-008-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,227,547	02/18/2025	2019-008
United States Of America	Issued Patent	11,795,208	10/24/2023	2019-008

BRIEF DESCRIPTION

Clustered Regularly Interspaced Short Palindromic Repeat (CRISPR)/Cas9 nucleases, when complexed with a guide RNA, effect genome editing in a sequence-specific manner. RNA-guided Cas9 has proven to be a versatile tool for genome engineering in multiple cell types and organisms. There is a need in the art for additional compositions and methods for controlling genome editing activity of CRISPR/Cas9.

UC Berkeley researchers have discovered a new protein that is able to inhibit the Cas9 protein from Staphyloccocus aureus (SauCas9). SauCas9 is smaller than the frequently used Cas9 from Streptococcus pyogenes, which has a number of benefits for delivery. The inhibitor is a small protein from a phage and is capable of strongly inhibiting gene editing in human cells.

SUGGESTED USES

» Gene editing

ADVANTAGES

» Limiting off-target editing, or other applications where reduced activity or rapid inhibition is desired

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Next-Generation Lipid Nanoparticles for Precision Nucleic Acid Delivery
- 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
- Targeted Nucleic Acid Editing via Cas9-Deaminase Fusion Proteins
- 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

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

» **Materials & Chemicals**

» Biological

» **Medical**

» Gene Therapy

» **Research Tools**

» Nucleic Acids/DNA/RNA

RELATED CASES

2019-008-0

- 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
- Methods and Compositions for Modifying a single stranded Target Nucleic Acid
- Genetically Encoded, Biologically Responsive, And Programmable Bispecific Aptames As Therapeutic Protein Degraders
- A Dual-RNA Guided CasZ Gene Editing Technology
- 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
- Single Conjugative Vector for Genome Editing by RNA-guided Transposition
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF
- Compositions and Methods for VIPR-Based Nucleic Acid Targeting
- Precision-Engineered Cas12a: Eliminating Collateral DNA Cleavage for Next-Generation Genome Editing
- Selective Cell Elimination using RNA-guided Chromatin Shredding
- 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

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