

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	11,795,208	10/24/2023	2019-008
United States Of America	Published Application	20210340199	11/04/2021	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 *Staphylococcus 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

- ▶ 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

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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

- ▶ A Dual-RNA Guided CasZ Gene Editing Technology
- ▶ Single-Stranded Nucleic Acid Detection And Imaging System Using Cas9
- ▶ CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF ("Cas-VariPhi")
- ▶ Modifications To Cas9 For Passive-Delivery Into Cells
- ▶ RNA-directed Cleavage and Modification of DNA using CasX (CRISPR-CasX)
- ▶ Compositions and Methods for Genome Editing
- ▶ Split-Cas9 For Regulatable Genome Engineering
- ▶ 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
- ▶ 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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