MINIATURE TYPE VI CRISPR-CAS SYSTEMS AND METHODS OF USE

Tech ID: 32413 / UC Case 2021-183-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20250313818	10/09/2025	2021-183

BRIEF DESCRIPTION

This technology includes new variants of CRISPR-Cas proteins from metagenomic datasets isolated from different environmental and microbiome environments that are distantly related to other CRISPR-Cas systems that utilize a guide RNA (gRNA) to perform RNA-directed cleavage of nucleic acids that can be applicable for RNA editing, diagnostics, and more. The enzyme is activated by the binding of an RNA target complementary to the spacer sequence, in order to activate cis-cleavage of the RNA target and/or unleash trans-cleavage activity against RNA substrates. This invention is especially useful for transcriptome editing as well as detecting RNA molecules, but can also detect DNA substrates upon transcription.

SUGGESTED USES

Possible applications of this invention include:

- transcript knockdown
- transcriptome editing by fusions to ADAR proteins
- detecting RNA molecules
- detection of DNA substrates upon transcription

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INVENTORS

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OTHER INFORMATION

KEYWORDS

CRISPR, Cas, transciptome editing

CATEGORIZED AS

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

RELATED CASES

2021-183-0

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
- 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
- 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
- Methods and Compositions for Modifying a single stranded Target Nucleic Acid
- A Dual-RNA Guided CasZ Gene Editing Technology
- 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
- 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
- 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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