CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF (“CAS-OMEGA”)

Tech ID: 32114 / UC Case 2021-018-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

CRISPR-Cas systems include Cas proteins, which are involved in acquisition, targeting and cleavage of foreign DNA or RNA, and a guide RNA(s), which includes a segment that binds Cas proteins and a segment that binds to a target nucleic acid. For example, Class 2 CRISPR-Cas systems comprise a single Cas protein bound to a guide RNA, where the Cas protein binds to and cleaves a targeted nucleic acid. The programmable nature of these systems has facilitated their use as a versatile technology for use in modification of target nucleic acid.

UC Berkeley researchers have discovered a novel family of proteins (CasOmega) that utilize a guide RNA to perform RNA-directed cleavage of nucleic acids. Viral and microbial (cellular) genomes were assembled from a variety of environmental and animal microbiome sources, and variants of a novel and previously unknown Cas protein family were uncovered from the sequences decoded.

SUGGESTED USES

» gene editing of bacterial, archaeal, and eukaryotic cells
» transcription repression of specific genes using inactivated CasOmega
» targeting of proteins bound to CasOmega to a specific locus of a genome
» diagnostic applications via trans-cleavage activity

INVENTORS

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OTHER INFORMATION

KEYWORDS

CRISPR, CasOmega, gene editing

CATEGORIZED AS

» Biotechnology
» Genomics
» Medical
» Diagnostics
» Research Tools
» Therapeutics
» Research Tools
» Nucleic Acids/DNA/RNA

RELATED CASES

2021-018-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

» Methods and Compositions for Using Argonaute to Modify a Single-Stranded Target Nucleic Acid
» COMPOSITIONS AND METHODS FOR IDENTIFYING HOST CELL TARGET PROTEINS FOR TREATING RNA VIRUS INFECTIONS
» Cas9 Variants With Altered DNA Cleaving Activity
» Cas12-mediated DNA Detection Reporter Molecules
» Cas13a/C2c2 - A Dual Function Programmable RNA Endoribonuclease
» Methods For High Signal-To-Noise Imaging Of Chromosomal Loci In Cells Using Fluorescent Cas9
» A Dual-RNA Guided Cas2 Gene Editing Technology
» CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF (“Cas-VariPhi”)
» A Protein Inhibitor Of Cas9
» Small Cas9 Protein Inhibitor
» Split-Cas9 For Regulatable Genome Engineering
» Decorating Chromatin for Precise Genome Editing Using CRISPR
» CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF (“Cas-Theta”)
» COMPOSITIONS AND METHODS FOR INCREASING HOMOLOGY-DIRECTED REPAIR
» 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
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 (CasGamma)

Improved gRNA and Protein Design for CasX-based Gene Editing Platform

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

Chimeric Cas9 Variants with Novel Engineered Enzymatic Activities

Small Molecule Assisted Cell Penetrating Cas9 RNP Delivery

Methods and Compositions for Controlling Gene Expression by RNA Processing