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

Tech ID: 32134 / UC Case 2021-027-0

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 (CasVarPhi) 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 CasVarPhi
» targeting of proteins bound to CasVarPhi to a specific locus of a genome
» diagnostic applications via trans-cleavage activity

INVENTORS

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OTHER INFORMATION

KEYWORDS
CRISPR, CasVarPhi, gene editing

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

RELATED CASES
2021-027-0

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 Endonuclease
» Methods For High Signal-To-Noise Imaging Of Chromosomal Loci In Cells Using Fluorescent Cas9
» A Dual-RNA Guided CasZ Gene Editing Technology
» 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 CAS 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 (“Cas-Omega”)
- 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