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

CONTACT
Terri Sale
terri.sale@berkeley.edu
tel: 510-643-4219.
A Dual-RNA Guided CasZ Gene Editing Technology
Modifications To Cas9 For Passive-Delivery Into Cells
A Protein Inhibitor Of Cas9
RNA-directed Cleavage and Modification of DNA using CasX (CRISPR-CasX)
Compositions and Methods for Genome Editing
Split-Cas9 For Regulatable Genome Engineering
NANOPORE MEMBRANE DEVICE AND METHODS OF USE THEREOF
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
Engineering Cas12a Genome Editors with Minimized Trans-Activity
Methods Of Use Of Cas12L/Cas Lambda 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 Cas4 Endoribonucleases
Identification Of Sites For Internal Insertions Into Cas9
Small Molecule Assisted Cell Penetrating Cas9 RNP Delivery
Methods and Compositions for Controlling Gene Expression by RNA Processing