CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF

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BRIEF DESCRIPTION

The CRISPR-Cas system is now understood to confer bacteria and archaea with acquired immunity against phage and viruses. CRISPR-Cas systems consist of Cas proteins, which are involved in acquisition, targeting and cleavage of foreign DNA or RNA, and a CRISPR array, which includes direct repeats flanking short spacer sequences that guide Cas proteins to their targets. Class 2 CRISPR-Cas are streamlined versions in which a single Cas protein bound to RNA is responsible for binding to and cleavage of a targeted sequence. The programmable nature of these minimal systems has facilitated their use as a versatile technology that is revolutionizing the field of genome manipulation. Current CRISPR Cas technologies are based on systems from cultured bacteria, leaving untapped the vast majority of organisms that have not been isolated. There is a need in the art for additional Class 2 CRISPR/Cas systems (e.g., Cas protein plus guide RNA combinations).

UC Berkeley researchers discovered a new type of Cas 12 protein. Site-specific binding and/or cleavage of a target nucleic acid (e.g., genomic DNA, ds DNA, RNA, etc.) can occur at locations (e.g., target sequence of a target locus) determined by base-pairing complementarity between the Cas12 guide RNA (the guide sequence of the Cas12 guide RNA) and the target nucleic acid. Similar to CRISPR Cas9, Cas12 enzymes are expected to have a wide variety of applications in genome editing and nucleic acid manipulation.

SUGGESTED USES

- Genome editing
- Gene therapy
- Diagnostic assays
- Research tools

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OTHER INFORMATION

KEYWORDS

CRISPR, Cas 12, Cas12J

CATEGORIZED AS

- Agriculture & Animal Science
- Medical
- Gene Therapy
- Research Tools
- Screening
- Therapeutics
- Research Tools
- Nucleic Acids/DNA/RNA
- Veterinary
- Diagnostics
- Therapeutics

RELATED CASES

2019-102-0

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
- Improved guide RNA and Protein Design for CasX-based Gene Editing Platform
- 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
- MODULATORS OF TYPE VI-D CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF ("Cas-VarPhi")
- A Protein Inhibitor Of Cas9
- Small Cas9 Protein Inhibitor