ENGINEERED/VARIANT HYPERACTIVE CRISPR CASPHI ENZYMES AND METHODS OF USE THEREOF

Tech ID: 32231 / UC Case 2021-083-0

PATENT STATUS

Patent Pending

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. 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 CasPhi/12j 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, the compact 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

ADVANTAGES

» Compact CRISPR enzyme

RELATED CASES
2021-083-0

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OTHER INFORMATION

KEYWORDS
Cas12j, CasPhi

CATEGORIZED AS

» Agriculture & Animal Science
» Transgenics
» Medical
» Gene Therapy
» Research Tools
» Therapeutics
» Research Tools
» Nucleic Acids/DNA/RNA
» Veterinary
» Therapeutics

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- COMPOSITIONS AND METHODS FOR IDENTIFYING HOST CELL TARGET PROTEINS FOR TREATING RNA VIRUS INFECTIONS
- Lentivirus-like Particle Delivery of CRISPR-Cas9 & Guide RNA for Gene Editing
- Type III CRISPR-Cas System for Robust RNA Knockdown and Imaging in Eukaryotes
- 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
- CasX Nickase Designs, Tans Cleavage Designs & Structure
- A Dual-RNA Guided CasZ Gene Editing Technology
- CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF ('Cas-VarPhi')
- Modifications To Cas9 For Passive-Delivery Into Cells
- A Protein Inhibitor Of Cas9
- Split-Cas9 For Regulatable Genome Engineering
- NANOPORE MEMBRANE DEVICE AND METHODS OF USE THEREOF
- Optimized Virus-like Particles for Cas9 RNPs & Transgene/HDR Template Delivery
- Protein Inhibitor of Type VI-B CRISPR-Cas System