CLASS 2 CRISPR/CAS COMPOSITIONS AND METHODS OF USE

Tech ID: 28923 / UC Case 2018-048-0

PATENT STATUS

<table>
<thead>
<tr>
<th>Country</th>
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<tr>
<td>United States Of America</td>
<td>Published Application</td>
<td>20210214697</td>
<td>07/15/2021</td>
<td>2018-048</td>
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<td>Patent Cooperation Treaty</td>
<td>Published Application</td>
<td>WO2019089808</td>
<td>05/09/2019</td>
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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 systems 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, so there is a need in the art for additional Class 2 CRISPR/Cas systems (e.g., Cas protein plus guide RNA combinations).

Researchers have shown that Class 2 CRISPR Cas protein and their variants can be used in a complex for specific binding and cleavage of DNA. The Class 2 CRISPR Cas complex utilizes a novel RNA and a guide RNA to perform double stranded cleavage of DNA and the complex is expected to have a wide variety of applications in genome editing and nucleic acid manipulation.

SUGGESTED USES

» Genome editing
» Genetic engineering
» Gene therapy
» Research tools (e.g., high-throughput screening of gene functions in cell lines and in vivo)
» Creation of transgenic animal models
» Genomic imaging

ADVANTAGES

» Adds additional versatility
» Variant PAM

RELATED CASES

2018-048-0

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 Cas2 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-VariPhi")
A Protein Inhibitor Of Cas9
Small Cas9 Protein Inhibitor
Split-Cas9 For Regulatable Genome Engineering
Decorating Chromatin for Precise Genome Editing Using CRISPR
Optimized Virus-like Particles for Cas9 RNPs & Transgene/HDR Template Delivery
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
CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF ("Cas-Omega")
CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF
Engineered/Variant Hyperactive CRISPR CasPi Enzymes And Methods Of Use Thereof
Type V CRISPR/Cas Effectors 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
CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF (CasGamma)
Compositions and Methods of Use for Variant Cas4 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