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>
<th>Type</th>
<th>Number</th>
<th>Dated</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patent Cooperation Treaty</td>
<td>Published Application</td>
<td>WO2019089808</td>
<td>05/09/2019</td>
<td>2018-048</td>
</tr>
</tbody>
</table>

Additional 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 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

INVETORS

» Doudna, Jennifer A.

OTHER INFORMATION

KEYWORDS
CRISPR, gene editing, genome, gene therapy, cell biology, Class 2

CATEGORIZED AS
» Biotechnology
» Genomics
» Medical
» Gene Therapy
» Research Tools
» Therapeutics
» Research Tools
» Nucleic Acids/DNA/RNA
» Veterinary
» Other
» Therapeutics

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
» Cas13a/C2c2 - A Dual Function Programmable RNA Endoribonuclease
» RNA-directed Cleavage and Modification of DNA using CasY (CRISPR-CasY)
» 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
NANOPORE MEMBRANE DEVICE AND METHODS OF USE THEREOF
Decorating Chromatin for Precise Genome Editing Using CRISPR
CRISPR CAS9 COMPOSITIONS AND METHODS OF USE
Single Conjugative Vector for Genome Editing by RNA-guided Transposition
Improved Cas12a Proteins for Accurate and Efficient Genome Editing
Type V CRISPR/CAS Effector Proteins for Cleaving ssDNA and Detecting Target DNA
THERMOSTABLE RNA-GUIDED ENZYMES 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
Compositions and Methods of Use for Variant Cas4 Endoribonucleases
Small Molecule Assisted Cell Penetrating Cas9 RNP Delivery
Methods and Compositions for Controlling Gene Expression by RNA Processing