CAS12-MEDIATED DNA DETECTION REPORTER MOLECULES

Tech ID: 29426 / UC Case 2018-173-0

PATENT STATUS

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<tr>
<th>Country</th>
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<tr>
<td>United States Of America</td>
<td>Published Application</td>
<td>20210317527</td>
<td>10/14/2021</td>
<td>2018-173</td>
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<tr>
<td>European Patent Office</td>
<td>Published Application</td>
<td>3844303 A0</td>
<td>07/07/2021</td>
<td>2018-173</td>
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<tr>
<td>Patent Cooperation Treaty</td>
<td>Published Application</td>
<td>WO2020046809</td>
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Additional Patents Pending

BRIEF DESCRIPTION

Class 2 CRISPR-Cas systems are streamlined versions in which a single Cas protein (an effector protein, e.g., a type V Cas effector protein such as Cpf1) 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 continues to revolutionize the field of genome manipulation.

Cas12 is an RNA-guided protein that binds and cuts any matching DNA sequence. Binding of the Cas12-CRISPR RNA (crRNA) complex to a matching single-stranded DNA (ssDNA) or double-stranded DNA (dsDNA) molecule activates the protein to non-specifically degrade any ssDNA in trans. Cas12a-dependent target binding can be coupled to a reporter molecule to provide a direct readout for DNA detection within a sample.

UC Berkeley researchers have developed compositions, systems, and kits having labeled single stranded reporter DNA molecules that provide a sensitive readout for detection of a target DNA.

SUGGESTED USES

» detecting a target DNA (double stranded or single stranded) in a sample

ADVANTAGES

» increased speed and sensitivity of nucleic acid detection

RELATED CASES

2018-173-0

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
- Lentivirus-like Particle Delivery of CRISPR-Cas9 & Guide RNA for Gene Editing
- Improved guide RNA and Protein Design for CasX-based Gene Editing Platform
- Cas13a/C2c2 - A Dual Function Programmable RNA Endonuclease
- Miniature Type VI CRISPR-Cas Systems and Methods of Use
- 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-VarPi")
- 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 & CRISPR-Cas System
• COMPOSITIONS AND METHODS FOR INCREASING HOMOLOGY-DIRECTED REPAIR
• 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
• Protein Inhibitor of Type II-A CRISPR-Cas System
• CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF
• Engineered/Variant Hyperactive CRISPR CasPn Enzymes And Methods Of Use Thereof
• Engineering Cas12a Genome Editors with Minimized Trans-Activity
• Methods Of Use Of Cas12L/CasLambda 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
• Endonucleases For Rna Detection And Analysis
• Efficient Site-Specific Integration Of New Genetic Information Into Human Cells
• 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
• 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