CAS12-MEDIATED DNA DETECTION REPORTER MOLECULES

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

PATENT STATUS

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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>
<td>03/05/2020</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 Argonate 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
- Improved guide RNA and Protein Design for CasX-based Gene Editing Platform
- Cas13a/C2c2 - A Dual Function Programmable RNA Endoribonuclease
- 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-VarPhi")
- 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-Cas Compositions and Methods of Use
- Single Conjugative Vector for Genome Editing by RNA-guided Transposition
- CRISPR-Cas Effector Polyepitides and Methods of Use Thereof ("Cas-Omega")
- CRISPR-Cas Effector Polyepitides and Methods of Use Thereof
- Engineered/Variant Hyperactive CRISPR CasPhi Enzymes And Methods Of Use Thereof
- 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
- CRISPR-Cas Effector Polyepitides and Methods of Use Thereof (CasGamma)
- Class 2 CRISPR/Cas Compositions and Methods of Use
- Compositions and Methods of Use for Variant Csy4 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