

CAS₁₂-MEDIATED DNA DETECTION REPORTER MOLECULES

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

PATENT STATUS

| Country | Type | Number | Dated | Case |
|--------------------------|-----------------------|-------------|------------|----------|
| United States Of America | Published Application | 20210317527 | 10/14/2021 | 2018-173 |
| European Patent Office | Published Application | 3844303 A0 | 07/07/2021 | 2018-173 |

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

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ COMPOSITIONS AND METHODS FOR IDENTIFYING HOST CELL TARGET PROTEINS FOR TREATING RNA VIRUS INFECTIONS
- ▶ Genome Editing via LNP-Based Delivery of Efficient and Stable CRISPR-Cas Editors
- ▶ Type III CRISPR-Cas System for Robust RNA Knockdown and Imaging in Eukaryotes
- ▶ Improved guide RNA and Protein Design for CasX-based Gene Editing Platform
- ▶ Cas13a/C2c2 - A Dual Function Programmable RNA Endoribonuclease
- ▶ RNA-directed Cleavage and Modification of DNA using CasY (CRISPR-CasY)

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INVENTORS

- » Doudna, Jennifer A.

OTHER INFORMATION

KEYWORDS

Detector, reporter, CRISPR, Cas12

CATEGORIZED AS

- » **Biotechnology**
 - » Genomics
- » **Imaging**
 - » Molecular
- » **Materials & Chemicals**
 - » Biological
- » **Medical**
 - » Diagnostics
- » **Research Tools**
 - » Nucleic Acids/DNA/RNA

RELATED CASES

2018-173-0

- ▶ CasX Nickase Designs, Tans Cleavage Designs & Structure
- ▶ In Vivo Gene Editing Of Tau Locus Via Liponanoparticle Delivery
- ▶ A Dual-RNA Guided CasZ Gene Editing Technology
- ▶ Single-Stranded Nucleic Acid Detection And Imaging System Using Cas9
- ▶ CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF ("Cas-VariPhi")
- ▶ Modifications To Cas9 For Passive-Delivery Into Cells
- ▶ A Protein Inhibitor Of Cas9
- ▶ RNA-directed Cleavage and Modification of DNA using CasX (CRISPR-CasX)
- ▶ Compositions and Methods for Genome Editing
- ▶ Split-Cas9 For Regulatable Genome Engineering
- ▶ Methods to Interfere with Prokaryotic and Phage Translation and Noncoding RNA
- ▶ CRISPR CASY COMPOSITIONS AND METHODS OF USE
- ▶ Single Conjugative Vector for Genome Editing by RNA-guided Transposition
- ▶ Improved Cas12a Proteins for Accurate and Efficient Genome Editing
- ▶ CRISPR-CAS EFFECTOR POLYPEPTIDES AND METHODS OF USE THEREOF
- ▶ Engineered/Variant Hyperactive CRISPR CasPhi Enzymes And Methods Of Use Thereof
- ▶ 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
- ▶ Endoribonucleases For Rna Detection And Analysis
- ▶ Efficient Site-Specific Integration Of New Genetic Information Into Human Cells
- ▶ CRISPR-Cas Effector Polypeptides and Methods of Use Thereof
- ▶ 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
- ▶ Methods and Compositions for Controlling Gene Expression by RNA Processing



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