COMPOSITIONS AND METHODS OF USE FOR VARIANT CSY4 ENDORIBONUCLEASES

Tech ID: 19837 / UC Case 2010-028-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,115,348	08/25/2015	2010-028

BRIEF DESCRIPTION

DNA restriction enzymes transformed molecular biology in the 1970s by making it possible to cleave specific DNA sequences at will. Sequencing of RNA molecules currently entails copying the RNA into a DNA strand that is then sequenced by conventional methods. This approach, also known as RNASeq, is robust and can yield many millions of sequence reads. However, the necessity of generating cDNA introduces inherent bias due to sequence-dependent efficiencies of individual steps.

UC Berkeley researchers discovered variant Csy4 endoribonucleases, nucleic acids encoding the variant Csy4 endoribonucleases, and host cells genetically modified with the nucleic acids that can be used to detect the presence of a particular sequence in a polyribonucleotide, (e.g., to detect the presence of pathogen in a biological sample). . The variant Csy4 endoribonucleases find use in a variety of applications, which are also provided. The present disclosure also provides methods of detecting a specific sequence in a target polyribonucleotide; and methods of regulating production of a target RNA in a eukaryotic cell.

SUGGESTED USES

- Detect a target nucleotide (e.g., of a pathogen in a biological sample)
- Purify a particular target RNA (or RNA protein complex) from within a complex mixture
- Delivery of modular components (e.g., effector domains) in conjunction with Cas9
- Modulate expression of RNA molecules in eukaryotic cells
- RNA processing enzyme

ADVANTAGES

- Detects as few as a single copy of a target polyribonucleotide

RELATED MATERIALS

- Sequence- and Structure-Specific RNA Processing by a CRISPR Endonuclease - 07/22/2010

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

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OTHER INFORMATION

KEYWORDS

Csy4, Cas9, CRISPR, imaging

CATEGORIZED AS

- **Materials & Chemicals**
  - Biological
- **Medical**
  - Imaging
  - Research Tools
- **Research Tools**
  - Reagents

RELATED CASES

2010-028-0

- Type III CRISPR-Cas System for Robust RNA Knockdown and Imaging in Eukaryotes
- Cas12-mediated DNA Detection Reporter Molecules
- Highly Multiplexed Tagging Methods for RNA Imaging and Other Applications
- Improved guide RNA and Protein Design for CasX-based Gene Editing Platform
- Cas13a/C2c2 - A Dual Function Programmable RNA Endoribonuclease
- Miniature Type VI CRISPR-Cas Systems and Methods of Use
- RNA-directed Cleavage and Modification of DNA using CasY (CRISPR-CasY)
- CasX Nickase Designs, Tans Cleavage Designs & Structure
- In Vivo Gene Editing Of Tau Locus Via Liponanoparticle Delivery
- Methods and Compositions for Modifying a single stranded Target Nucleic Acid
- 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”)
- 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
- Minimal RNA Targeting CRISPR Cas Systems
- Variant Cas12a Protein Compositions and Methods of Use
- 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
- Efficient Site-Specific Integration Of New Genetic Information Into Human Cells
- CRISPR-Cas Effector Polypeptides and Methods of Use Thereof
- Virus-encoded DNA-binding Proteins
- Class 2 CRISPR/Cas COMPOSITIONS AND METHODS OF USE
- Methods and Compositions for Controlling Gene Expression by RNA Processing

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