CAS12-MEDIATED DNA DETECTION REPORTER MOLECULES

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

PATENT STATUS

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<td>Hong Kong</td>
<td>Published Application</td>
<td>40056423</td>
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<td>United States Of America</td>
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<td>20210317527</td>
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<td>3844303 A0</td>
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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

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

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

» 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
» 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