

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

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INVENTORS

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OTHER INFORMATION

KEYWORDS

Detector, reporter, CRISPR, Cas12

CATEGORIZED AS

» **Biotechnology**

» Genomics

» **Imaging**

» Molecular

» **Materials & Chemicals**

» Biological

» **Medical**

» Diagnostics

» **Research Tools**

» Nucleic Acids/DNA/RNA

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