Case name
Single-Stranded Nucleic Acid Detection And Imaging System Using Cas9

Owner
University of California

Website
https://techtransfer.universityofcalifornia.edu/NCD/24729.html

description

Genome editing using CRISPR/Cas9 has enabled rapid and accessible alteration of specific genomic loci in many organisms. A flexible means to target nucleic acids would allow alteration and imaging of endogenous RNA transcripts, for example, analogous to CRISPR/Cas-based genomic tools, but most nucleic acid targeting methods rely on incorporation of exogenous tags.

UC Berkeley researchers discovered compositions and methods for labeling a single stranded target nucleic acid with the use of a Cas9 protein; a Cas9 guide RNA; and a quenched PAMmer (a single stranded oligonucleotide having a protospacer adjacent motif (PAM) sequence. The PAMmer also contains a detectable label and a quencher moiety that quenches the detectable label. Cas9 cleavage of the PAMmer is predicted on complete Cas9 sgRNA: target complementarity and thus is highly specific. The inventors have used the methods and compositions to track RNA in living cells in a programmable manner without genetically encoded tags.

Suggested uses

- Detection of endogenous and foreign single-stranded nucleic acids (e.g., in cell culture, patient samples, and environmental samples)
- Fixed and live-cell imaging of single-stranded nucleic acids

Advantages

- Ultra-low background and thus fewer false positive signals
- Highly specific and sensitive detection

Publication

Programmable RNA Tracking in Live Cells with CRISPR/Cas9

Date
2017-01-08 00:00:00

Case Ref.
UC Case 2015-090-0

Industry
Biotech

Application number
US20180002736

Applicants
University of California

Limitations:

Meta information:

Meta title
Single-Stranded Nucleic Acid Detection And Imaging System Using Cas9

Support:

Access to additional documentation
Please inquire

Support from inventors
Please inquire