LAMBDA RED-CAST FOR IMPROVED EDITING EFFICIENCY IN GRAM NEGATIVE BACTERIA

Tech ID: 33700 / UC Case 2025-019-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

A method for improving the efficiency of genome editing in Gram-negative bacteria using a CRISPR-associated transposase (CAST) system. Traditional methods for genetic modification in these bacteria are often inefficient and complex. Researchers at UC Berkeley have developed a system that combines a CAST complex, which recognizes specific DNA sequences and inserts a transposon, with a CAST modulator. This modulator significantly enhances the system's editing efficiency, making it a powerful tool for precise and efficient genetic manipulation in Gram-negative bacteria.

SUGGESTED USES

» Drug discovery: Can be used to create modified bacterial strains for producing novel therapeutics or for screening new drugs.

» Biofuel production: Could be used to engineer bacteria to more efficiently produce biofuels.

» Bioremediation: Useful for modifying bacteria to degrade pollutants and clean up contaminated environments.

» Agricultural applications: Can be used to create improved crop-related bacteria, such as those that promote plant growth or protect against pests.

ADVANTAGES

» Improved Efficiency: The addition of a CAST modulator significantly enhances the efficiency of genome editing compared to systems without it.

» Precision: The system allows for precise, targeted insertion of genetic material.

» Broad Applicability: Effective in Gram-negative bacteria, a class of organisms that are often challenging to modify genetically.

RELATED MATERIALS

CONTACT

Laleh Shayesteh
lalehs@berkeley.edu
tel: 510-642-4537.

INVENTORS

» Rubin, Benjamin E.

OTHER INFORMATION

CATEGORIZED AS

» **Biotechnology**
» Genomics
» Other
» **Medical**
» Gene Therapy
» **Research Tools**
» Other
» Vectors

RELATED CASES

2025-019-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Modular Surface Display Systems For Microbial Selection And Targeting

University of California, Berkeley Office of Technology Licensing
2150 Shattuck Avenue, Suite 510, Berkeley,CA 94704
Tel: 510.643.7201 | Fax: 510.642.4566
https://ipira.berkeley.edu/ | otl-feedback@lists.berkeley.edu