METHODS AND MATERIALS FOR IMPROVING BACTERIAL CONJUGATION

Tech ID: 34356 / UC Case 2026-061-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

When a delivered plasmid lacks exclusion genes during bacterial conjugation is a phenomenon known as lethal zygosis. The effect of this lethal zygosis is a severe bottleneck for genetic engineering.

UC researchers have developed materials and methods that improve bacterial conjugation. This replication incompetent vectors that include a nucleic acid sequence that can encode an exclusion polypeptide in a donor bacterial cell can protect a recipient bacterial cell from lethal zygosis.

SUGGESTED USES

» genetic engineering and synthetic biology

» microbial strain development for biotechnology

» industrial fermentation optimization

» antibiotic resistance and gene transfer studies

» microbiome engineering and therapeutic research

ADVANTAGES

» protects recipient cells during conjugation, significantly improving survival rates

» enables more reliable and efficient DNA delivery between bacterial cells

» reduces loss of engineered strains, saving time and resources

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OTHER INFORMATION

KEYWORDS

Bacterial conjugation, lethal zygosis, exclusion genes, genetic engineering, microbial engineering, plasmid delivery

CATEGORIZED AS

» **Medical**

» Delivery Systems

» Gene Therapy

» Research Tools

» Therapeutics

» **Research Tools**

» Nucleic Acids/DNA/RNA

RELATED CASES

2026-061-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

▶ Lambda Red-CAST for Improved Editing Efficiency in Gram Negative Bacteria

▶ Modular Surface Display Systems For Microbial Selection And Targeting

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