

Next-Generation Engineered Adenine Base Editor (ABE)

Tech ID: 34605 / UC Case 2026-545-0

BRIEF DESCRIPTION

A highly precise and efficient gene-editing tool designed to correct single-nucleotide DNA mutations responsible for genetic diseases.

FULL DESCRIPTION

This advanced adenine base editor integrates engineered TadA8e and SpyCas9 modifications to enable precise correction of single-nucleotide changes in DNA. It offers improvements over existing base editors by enhancing efficiency, accuracy, and PAM-independence, while reducing off-target effects and enabling a smaller size for more effective in vivo delivery. This allows targeting of previously inaccessible genetic mutations with reduced risk of unintended DNA alterations.

SUGGESTED USES

- » Gene therapy for inherited genetic disorders
- » Biomedical research and functional genomics
- » Development of precision medicine treatments
- » Agricultural biotechnology for crop improvement
- » Pharmaceutical development targeting genetic conditions

ADVANTAGES

- » Increased editing efficiency and accuracy
- » PAM-independent targeting expands editable genome range
- » Smaller molecular size enhances delivery in vivo
- » Reduced off-target and unintended DNA modifications
- » Capability to target difficult or previously unreachable mutations

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OTHER INFORMATION

KEYWORDS

CRISPR-Cas, genome editing, SNP, ABE, base editing, deaminase

CATEGORIZED AS

- » **Biotechnology**
 - » Genomics
- » **Medical**
 - » Disease: Genetic Diseases and Dysmorphic Syndromes
 - » Gene Therapy
 - » Therapeutics
- » **Research Tools**
 - » Nucleic Acids/DNA/RNA

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