Version: 02
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DATASHEET

GenCRISPR™ SaCas9 2NLS Nuclease

Cat. No.: Z03699-0.1; Z03699-0.5; Z03699-1
Size: 0.1 mg / 0.5 mg / 1 mg

Product Introduction

The GenCRISPR™ SaCas9 2NLS Nuclease can be formed with the guide RNA into a ribonucleoprotien (RNP) complex. The use of an RNP complex to perform gene editing has been shown to reduce the challenges encountered with other CRISPR gene editing techniques such as viral and plasmid delivery. Challenges include off-target effects, cell viability and transcription/translational challenges. The SaCas9 recognizes an NNGRRT protospacer adjacent motif (PAM) and cleaves target DNA at high efficiency with a variety of guide RNA (gRNA) spacer lengths.

GenCRISPR™ SaCas9 2NLS Nuclease is a tag free nuclease produced by expression in an *E. coli* strain carrying a plasmid encoding the Cas9 gene from *Staphylococcus aureus* with a nuclear localization signal at both N-terminal and C-terminal.The small size of the nuclease facilitates enhanced in vivo delivery for genome editing in various organisms.

Source: Recombinant SaCas9 with an NLS at both N-terminal and C-terminal expressed by *E.coli*
Species: *Staphylococcus aureus*
Tag: Tag-free
Molecular Weight: ~130 kDa
Concentration: 4 mg/ml
Active temperature: This SaCas9 is active at 37°C.

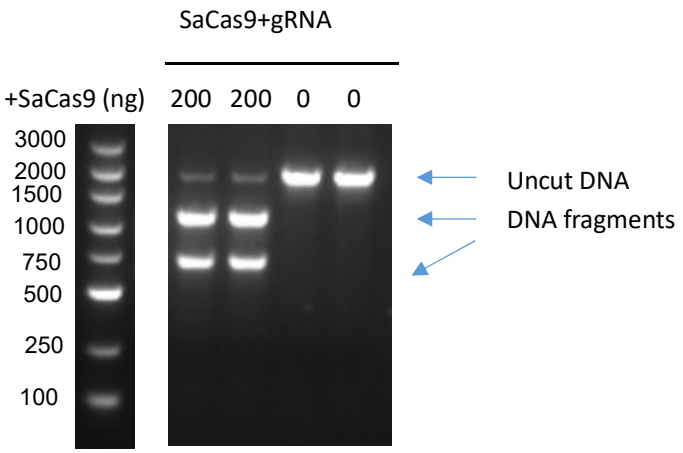
Formulation: Supplied as a solution of 20 mM Tris, 300 mM NaCl, 0.1 mM TCEP, 50% glycerol, pH 7.5
Storage& Stability: This product remains stable up to 12 months at -20°C. Avoid repeated freeze-thaw cycles
Application: gRNA-dependent double-stranded DNA cleavage

Quality Control Specifications

Assay	Specifications
Appearance	Clear, colorless liquid
Purity	≥ 90% as analyzed by SDS-PAGE
Concentration by A280	4 mg/ml±10%
Bioactivity (*in vitro*)	≥ 90%
Residual DNase	Non-specific DNase activity

Residual RNase	Non-specific RNase activity
Endotoxin Level	≤ 100 EU/mg as analyzed by gel clotting method

Data images:



A 20 µl reaction in 1 × SaCas9 Nuclease Reaction Buffer containing linearized plasmid, gRNA, and SaCas9 for 2 hours at 37 °C results in a digestion efficiency of linearized plasmid higher than 90%, as determined by agarose gel electrophoresis.

Key features:

High knockout efficiencies: Consistent high performance in *in-vitro* plasmid cleavage test.

Tag-free: No extra tag amino acid.

DNA-free: No external DNA added to the system.

References:

1. Jia, Hongge, et al. "Editing citrus genome via SaCas9/sgRNA system." Frontiers in plant science 8 (2017): 2135.
2. Luan, Binquan, et al. "Combined computational–experimental approach to explore the molecular mechanism of SaCas9 with a broadened DNA targeting range." Journal of the American Chemical Society 141.16 (2019): 6545-6552.
3. Sun, Haojie, et al. "Development of a CRISPR-SaCas9 system for projection-and function-specific gene editing in the rat brain." Science advances 6.12 (2020): eaay6687.

For laboratory research use only. Direct human use, including taking orally and injection and clinical use are forbidden.