Version: 01
Update: 06/25/2021

DATASHEET

GenCRISPR™ Cas12a (Cpf1) Nuclease

Cat. No.: Z03502-50; Z03502-100; Z03502-500; Z03502-1
Size: 50 μg / 100 μg / 500 μg / 1 mg

Product Introduction

The clustered regularly interspaced short palindromic repeats, known as CRISPR systems are adaptive immune mechanisms commonly present in archaea and bacteria. The CRISPR systems enable the host to specifically target and cleave foreign nucleic acids thus targeting infectiousviruses and plasmids. Recently, a type V CRISPR system has been identified in several bacteria, the Cpf1 CRISPR from Prevotella and Francisella 1. In contrast to Cas9 systems, CRISPR/Cpf1 systems are smaller in size, do not require an additional trans-activating crRNA (tracrRNA), and allow for targeting of additional genomic regions by cleaveing the target DNA proceeded by a short T-rich protospacer-adjacent motif (PAM). On the other hand, the Cas9 system requires a G-rich PAM following the target DNA. Furthermore, Cas12a/Cpf1 introduces a staggered DNA double stranded break with a 4 or 5-nt 5' overhang. Recombinant Acidaminococcus sp. BV3L6 Cas12a (cpf1) nuclease is expressed in E. coli and purified. The nuclease contains nuclear localization sequence (NLS) at the C-terminus and 6× His-tag at the C-terminus.

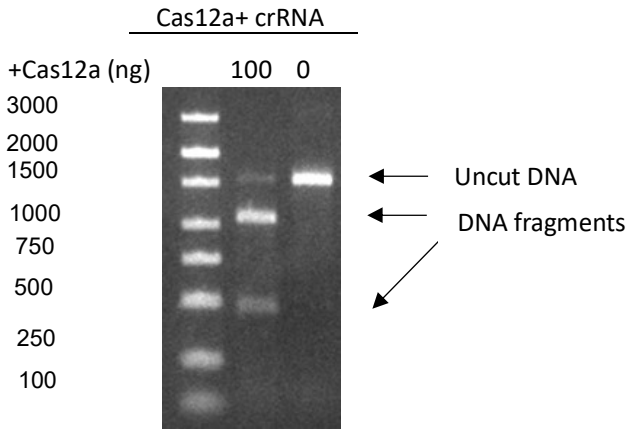
Source: Recombinant Cas12a with an C-terminal NLS expressed by E.*coli*
Species: *Acidaminococcus sp. (strain BV3L6)*
Accession#: U2UMQ6
Tag: C-terminal 6× His Tag
Apparent Molecular Weight: ~150 kDa, on SDS-PAGE under reducing conditions
Concentration: 4 mg/ml
Active temperature: This Cas12a is active at 37℃.
Formulation: Supplied as a solution of 10 mM Tris, pH7.4, 300 mM NaCl, 0.5 mM DTT, and 50% glycerol.
Storage& Stability: This product remains stable up to 18 months at -20℃. Avoid repeated freeze-thaw cycles.
Application: crRNA -dependent double-stranded DNA cleavage

Quality Control Specifications

Assay	Specifications
Appearance	Clear, colorless liquid
Purity by SDS-PAGE	≥ 90%
Concentration by A280	4(+ 10%) mg/ml

Bioactivity (*in vitro*)	≥ 90%
Residual DNase	Undetectable
Residual RNase	Undetectable
Endotoxin Level	≤ 0.1 EU/μg of the protein by gel clotting method

Data Images



A 20 μl reaction in 1xCas12a Nuclease Reaction Buffer containing 60 ng linearized plasmid, 10 ng crRNA, and 100 ng GenCRISPR™ Cas12a (Cpf1) Nuclease for 30 mins 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.
Time-saving: no need for transcription and translation.
DNA-free: no external DNA added to system.

References

1. Zetsche, Bernd, et al. "Cpf1 is a single RNA-guided endonuclease of a class 2 CRISPR-Cas system." *Cell* 163.3 (2015): 759-771.
2. Ledford, Heidi. "Alternative CRISPR system could improve genome editing." Nature News 526.7571 (2015): 17.
3. “Cpf1 Takes CRISPR Bigger by Going Smaller.” https://epigenie.com/cpf1-takes-crispr-bigger-by-going-smaller/

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