

SPECIFICATION SHEET

Product Name: SpCas9 (D10A)-NLS
Catalog # CS09N-E331H

Product Description: Recombinant full-length SpCas9 (D10A)-NLS from *S. pyogenes* expressed in *E. coli* using a C-terminal His tag. Contains a nuclear localization signal for optimal activity. Enzyme supplied with 1 mL of Cas9 reaction buffer, 10x (CS09-09).

Storage and Stability: Store at -70°C . To avoid repeated handling and multiple freeze/thaw cycles, aliquot product into smaller quantities.

Data for a Sample Lot:

Alternate Names : Cas9-D10A Nickase Protein

Source : *Streptococcus pyogenes*

Accession Numbers : Genbank: [AAK33936.1](#)
 UniProt: [Q99ZW2](#)

Host : *E. coli*

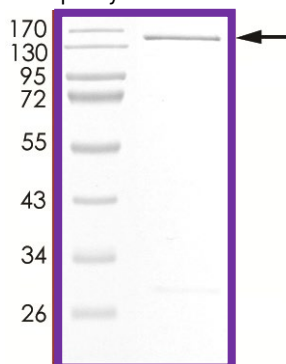
Formulation : Protein stored in 50 mM sodium phosphate, pH 7.5, 300 mM NaCl, 200 mM imidazole, 1 mM DTT, 10% glycerol

Molecular Weight : Calculated: 161.0 kDa
 Observed: ~160 kDa

Concentration : 0.2 $\mu\text{g}/\mu\text{L}$
 6.26 pmol/ μg

Purity : The purity was determined to be >80% by densitometry

Gel Image



Recommendation : Always include RNase inhibitor at recommended concentrations in Cas enzyme reactions.

Scientific Background : Cas9 is a multidomain nuclease from the bacterium *Streptococcus pyogenes* characteristic of type II CRISPR-Cas systems (1). Guided by a single-guide RNA (sgRNA), Cas9 targets specific genomic loci and generates a blunt-ended double-strand break (2). SpCas9 (D10A)-NLS is a catalytic mutant of Cas9 containing a nuclear localization signal for optimal activity (3). Unlike the wild-type Cas9, SpCas9 (D10A)-NLS generates a single-strand DNA break on the targeting strand. SpCas9 (D10A) can be used for various genome editing applications.

References : 1. Nishimasu H, Ran FA, Hsu PD, Konermann S, Shehata SI, Dohmae N, Ishitani R, Zhang F, Nureki O. Crystal structure of Cas9 in complex with guide RNA and target DNA. 2014. Cell. 156(5):935-49.

2. Sapranauskas R, Gasiunas G, Fremaux C, Barrangou R, Horvath P, Siksnys V. 2011. The *Streptococcus thermophilus* CRISPR/Cas system provides immunity in *Escherichia coli*. *Nucleic Acids Res.* 39(21):9275-82.
3. Jiang F, Doudna JA. 2017. CRISPR-Cas9 Structures and Mechanisms. *Annu Rev Biophys.* 46:505-529.