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SPECIFICATION SHEET

Product Name: SpCas9-NLS, Glycerol-Free — Catalog # CS09N-E312HB

Product Description: Recombinant full-length SpCas9 from *S. pyogenes* was expressed in *E. coli* using a C-terminal His tag. Cas9-NLS 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 : Csn1, Csx12, Spy_1046, SpyCas9

Source : *Streptococcus pyogenes*

Accession Numbers : Genbank: AAK33936.1
UniProt: Q99ZW2

Host : *E. coli*

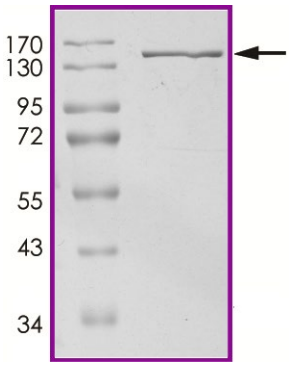
Formulation : Protein stored in 50 mM sodium phosphate, pH 7.5, 300 mM NaCl, 150 mM imidazole, 1 mM DTT, 5% trehalose

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

Concentration : 0.1 µg/µL
6.26 pmol/µg

Purity : The purity was determined to be >90% by densitometry

Gel Image



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

Scientific Background : In bacteria and archaea, CRISPR-Cas systems provide sequence-based adaptive immunity against mobile genetic elements such as phages and plasmids (1). Cas9 is a multidomain nuclease from the bacterium *Streptococcus pyogenes* characteristic of type II CRISPR-Cas systems (2). Guided by a single-guide RNA (sgRNA), Cas9 targets specific genomic loci and generates a blunt-ended double-strand break (3). Cas9 can be used for genetic engineering experiments such as genome editing and generating transgenic models (4).

References

: 1. Gong T, et al. 2019. CRISPR-Cas Systems in Streptococci. Curr Issues Mol Biol. 32:1-38.
2. Nishimasu H, et al. 2014. Crystal structure of Cas9 in complex with guide RNA and target DNA. Cell. 156(5):935-49.

3. Sapranauskas R, et al. 2011. The Streptococcus thermophilus CRISPR/Cas system provides immunity in Escherichia coli. Nucleic Acids Res.39(21):9275-82.
4. Adli M. 2018 The CRISPR tool kit for genome editing and beyond. Nat Commun. 9(1):1911.