

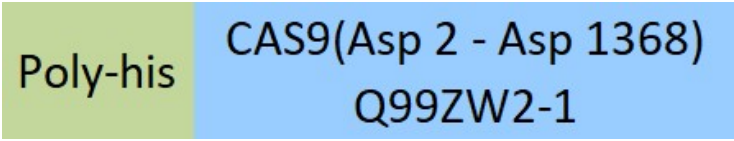
Synonym

CAS9

Source

Cas9 Nuclease (CA9-S51H4) is expressed from E.coli cells. It contains AA Asp 2 - Asp 1368 (Accession # [Q99ZW2-1](#)).
Predicted N-terminus: Met

Molecular Characterization



This protein carries a polyhistidine tag at the N-terminus. The protein has a calculated MW of 160.3 kDa. This protein has no NLS, which is ideal for in vitro digestion of dsDNA only.

Endotoxin

Less than 0.1 EU per µg by the LAL method.

Purity

>90% as determined by SDS-PAGE.

>95% as determined by SEC-MALS.

Formulation

Supplied as 0.2 µm filtered solution in 20 mM Tris, 300 mM NaCl, 1 mM EDTA, 1 mM TCEP, pH7.5 with glycerol as protectant.

Contact us for customized product form or formulation.

Storage

Please avoid repeated freeze-thaw cycles.

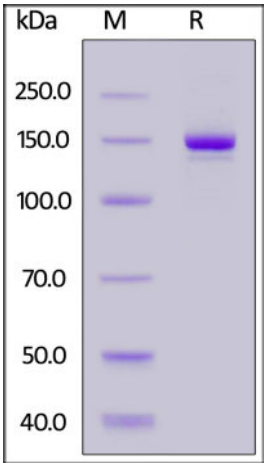
This product is stable after storage at:

- The product MUST be stored at -20°C or lower upon receipt.
- -20° C for 3 months under sterile conditions.

Shipping

This product is supplied and shipped as sterile liquid solution with blue ice, please inquire the shipping cost.

SDS-PAGE

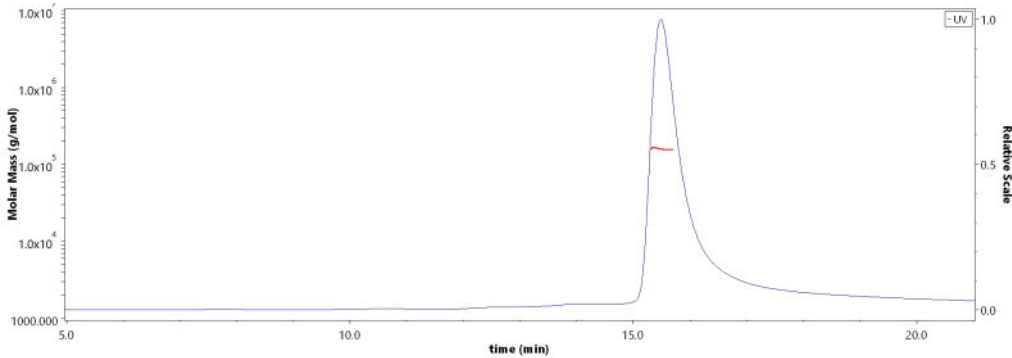


Cas9 Nuclease on SDS-PAGE under reducing (R) condition. The gel was stained overnight with Coomassie Blue. The purity of the protein is greater than 90%.

Bioactivity

Measured by its ability to cleave a targeted DNA substrate. S. pyogenes CRISPR-Cas9 achieves >90% substrate cleavage (QC tested).

SEC-MALS



The purity of Cas9 Nuclease (Cat. No. CA9-S51H4) is more than 95% and the molecular weight of this protein is around 150-182 kDa verified by SEC-MALS.

[Report](#)

Background

CRISPR (clustered regularly interspaced short palindromic repeat) is an adaptive immune system that provides protection against mobile genetic elements (viruses, transposable elements and conjugative plasmids). CRISPR clusters contain spacers, sequences complementary to antecedent mobile elements, and target invading nucleic acids. CRISPR clusters are transcribed and processed into CRISPR RNA (crRNA). In type II CRISPR systems correct processing of pre-crRNA requires a trans-encoded small RNA (tracrRNA), endogenous ribonuclease 3 (rnc) and this protein. The tracrRNA serves as a guide for ribonuclease 3-aided processing of pre-crRNA; Cas9 only stabilizes the pre-crRNA:tracrRNA interaction and has no catalytic function in RNA processing. Subsequently Cas9/crRNA/tracrRNA endonucleolytically cleaves linear or circular dsDNA target complementary to the spacer; Cas9 is inactive in the absence of the 2 guide RNAs (gRNA). The target strand not complementary to crRNA is first cut endonucleolytically, then trimmed 3'-5' exonucleolytically. DNA-binding requires protein and both gRNAs, as does nuclease activity. Cas9 recognizes the protospacer adjacent motif (PAM) in the CRISPR repeat sequences to help distinguish self versus nonself, as targets within the bacterial CRISPR locus do not have PAMs. DNA strand separation and heteroduplex formation starts at PAM sites; PAM recognition is required for catalytic activity.

Clinical and Translational Updates

Please contact us via TechSupport@acrobiosystems.com if you have any question on this product.