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Recombinant Streptococcus pyogenes M1 Cas9 Protein

Catalog No.: RPT0012LQ Recombinant

Sequence Information

Species	Gene ID	Swiss Prot
E. coli	69900935	Q99ZW2

Tags
C-His

Synonyms
CRISPR-Cas9;Cas9;M1 Cas9

Product Information

Source
E. coli

Purification
≥ 90% as determined by SDS-PAGE.

Endotoxin
Please contact us for more information.

Formulation
Supplied as a 0.22 μm filtered solution in 10mM Tris, 300mM NaCl, 0.1mM EDTA, 1mM DTT, 50% Glycerol, pH7.4.

Reconstitution

Contact

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Background

Streptococcus pyogenes Cas9 (CRISPR associated protein 9) is a 160 kDa RNA guided endonuclease that introduces site specific cleavage of double strand DNA. It is part of the Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) system found in many bacteria such as S. pyogenes and most archaea, which provide adaptive immunity against invading mobile genetic elements (such as viruses, transposable elements and conjugative plasmids). Upon viral infection, short viral DNA (known as "spacers") integrate into the host genome between CRISPR repeats, and RNA sequences (guide RNA or gRNA) with this genetic information help guide Cas9 protein to recognize and cut foreign DNA. Cas9 protein undergoes conformational changes upon gRNA binding that shift from non-DNA binding conformation into an active DNA binding conformation. In the Cas9-gRNA complex, the gRNA sequence remains accessible to interact with free DNA, and the extent to which the gRNA spacer and target DNA segment (known as "protospacer") match will determine the cut site. The presence of a 5′-NGG-3′ protospacer adjacent motif (PAM) sequence immediately downstream of protospacers is required for Cas9 cleavage of the foreign DNA. PAM is absent in bacterial CRISPR loci, therefore preventing cleavage of the host genome. Cas9 associates with other proteins of the acquisition machinery (Cas1, Cas2 and Csn2), presumably to provide PAM specificity to this process.

Basic Information

Description
Recombinant Streptococcus pyogenes M1 Cas9 Protein is produced by E. coli expression system. The target protein is expressed with sequence (Asp2-Asp1368) of streptococcus pyogenes M1 Cas9 (Accession #NP_269215.1) fused with a nuclear localization sequence (NLS) on its N terminal and C terminal, also a His tag at the C-terminus. NLS localization ensures that Cas9 protein can enters the nucleus, ensuring high cutting efficiency.

Bio-Activity

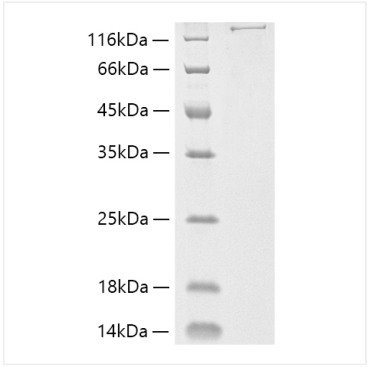
Shipping
Lyophilized proteins are shipped at ambient temperature.
Liquid proteins are shipped at frozen temperature with dry ice.
Upon receipt, store it immediately at the temperature recommended below.

Operational Notes
For your safety and health, please wear a lab coat and disposable gloves for handling.

Storage
Store at -80℃
Avoid repeated freeze/thaw cycles.

* For your safety and health, please wear a lab coat and disposable gloves when handling.

Validation Data



Recombinant Streptococcus pyogenes M1 Cas9 Protein was determined by SDS-PAGE under reducing conditions with Coomassie Blue.