

SPECIFICATION SHEET

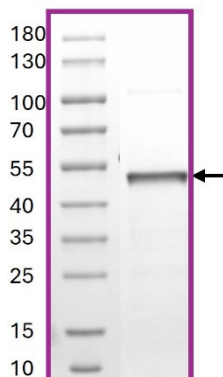
Product Name: LsCsm6
Catalog # LS01-E31H

Product Description: Recombinant *Ligilactobacillus salivarius* protein LsCsm6 was expressed in *E. coli* cells using a His tag.

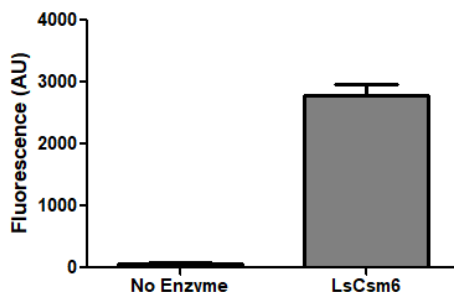
Storage and Stability: Store at -20°C . To avoid repeated handling and multiple freeze/thaw cycles, aliquot product into smaller quantities.

Data for a Sample Lot:

Alternate Names	: CRISPR system endoribronuclease Csm6, CRISPR type III-A associated protein Csm6
Source	: <i>Ligilactobacillus salivarius</i>
Accession Numbers	: Genbank: WP_081509150
Host	: <i>E. coli</i>
Formulation	: Protein stored in 25 mM Tris, 300 mM NaCl, pH 7.5, 0.1 mM TCEP, 50% glycerol
Molecular Weight	: Calculated: 49.6 kDa Observed: ~49 kDa
Concentration	: 1.0 $\mu\text{g}/\mu\text{L}$ 20.4 pmol/ μg
Purity	: The purity was determined to be >90% by densitometry
Gel Image	



Activity



LsCsm6 nuclease activity assayed using a fluorogenic substrate and 20 nM enzyme according to the activity assay protocol.

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

Scientific Background

: LsCsm6 is a single-stranded RNA-specific endoribonuclease that consists of the N-terminal CARF domain and the C-terminal HEPN domain. The ribonuclease active site is formed by dimerization of the HEPN domains. LsCsm6 belongs to the Class 1 type-III-A CRISPR-Cas system (1). Upon activation, the CRISPR ancillary ribonucleases Csx1/Csm6, the HEPN active site degrades invasive RNA in a non-specific manner. LsCsm6 is activated by cyclic oligoadenylate second messengers synthesized from ATP by the Cas10 subunit of the Type III interference complex (2).

References

1. Niewoehner, O. et al. 2016. Structural basis for the endoribonuclease activity of the type III-A CRISPR-associated protein Csm6. *RNA* 22(3):318-329.
2. Niewoehner, O. et al. 2017. Type III CRISPR-Cas systems produce cyclic oligoadenylate second messengers. *Nature* 548(7669): 543-548.