

SPECIFICATION SHEET

Product Name: TtCsm6

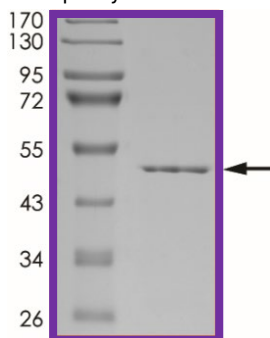
Catalog # CS06-E311H

Product Description: Recombinant *Thermus thermophilus* protein TtCsm6 was expressed in *E. coli* cells using a C-terminal His tag.

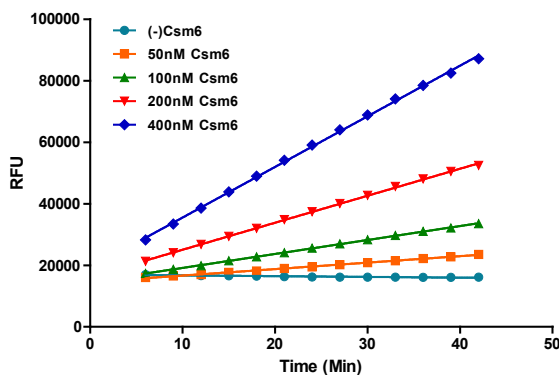
Storage and Stability: Store at -70°C . To avoid repeated handling and multiple freeze/thaw cycles aliquot product into smaller quantities.

Data for a Sample Lot:

Alternate Names	: CRISPR system endoribonuclease Csm6, CRISPR type III-A associated protein Csm6
Source	: <i>Thermus thermophilus</i>
Accession Numbers	: Genbank: WP_011229148 UniProt: Q53W17
Host	: <i>E. coli</i>
Formulation	: Protein stored in 50 mM sodium phosphate, pH 7.5, 300 mM NaCl, 150 mM imidazole, 1 mM DTT, 10% glycerol
Molecular Weight	: Calculated: 52.7 kDa Observed: ~50 kDa
Concentration	: 1.0 $\mu\text{g}/\mu\text{L}$ 18.18 pmol/ μg
Purity	: The purity was determined to be >90% by densitometry
Gel Image	



Activity



TtCsm6 activity was determined using a fluorogenic substrate, with fluorescent signal measured over time.

Recommendation

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

Scientific Background

: TtCsm6 is an endoribonuclease specific for single-stranded RNA that consists of the N-terminal CARF domain and the C-terminal HEPN domain. The ribonuclease active site is formed by the HEPN domain dimer. TtCsm6 belongs to the Class 1 type-III-A CRISPR-Cas system (1). Upon activation of the CRISPR ancillary ribonucleases Csx1/Csm6, the HEPN active site degrades invasive RNA non-specifically. TtCsm6 is activated by the cyclic oligoadenylate second messengers that was converted 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.