

SPECIFICATION SHEET

Product Name: TccCas13a
Catalog # CS13A-E314H

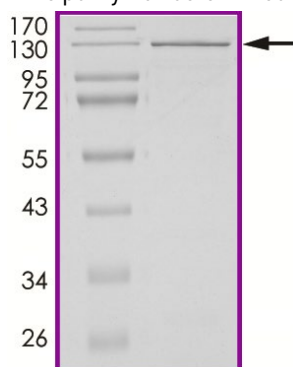
Product Description: Recombinant full-length (1225 aa.) *Thermoclostridium caenicola* enzyme expressed in *E. coli* using a C-terminal His tag. Enzyme supplied with 1 mL of Cas13 reaction buffer II, 10x (CS13-09B).

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

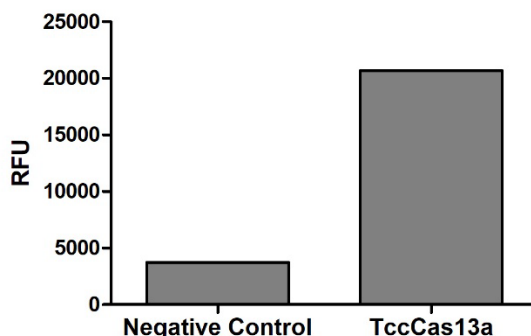
Data for a Sample Lot:

Alternate Names : Type VI-A CRISPR-associated RNA-guided ribonuclease Cas13a
Source : *Thermoclostridium caenicola*
Accession Numbers : Genbank: [WP_149678719](https://www.ncbi.nlm.nih.gov/nuclot/149678719)
Host : *E. coli*
Formulation : Protein stored in 50 mM sodium phosphate, pH 7.5, 150 mM imidazole, 1 mM DTT, 10% glycerol
Molecular Weight : Calculated: 144.7 kDa
 Observed: ~139 kDa
Concentration : 0.2 mg/mL
 6.91 pmol/ μg
Purity : The purity was determined to be >95% by densitometry

Gel Image



Activity



TccCas13a nuclease activity was assayed using a fluorogenic substrate according to the activity assay protocol.

Recommendation

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

Scientific Background

: CRISPR-Cas systems constitute the adaptive immune system in bacteria via RNA-guided endonucleases (1). Cas13a is an RNA-guided RNA endonuclease that belongs to the Class 2 type VI CRISPR-Cas system (2). Cas13a possess both RNA recognition and cleavage activities and cleaves RNA through conserved basic residues within its two HEPN domains (3). *Thermoclostridium caenicola* Cas13a is thermostable and exhibits robust cis and trans catalytic activities over a broad range of temperatures from 37 to 70 °C (4). This enzyme may be used for various biotechnological applications including diagnostics development, transcriptome engineering, editing, and targeted therapeutics.

References

1. Horvath, P., et al. 2010. CRISPR/Cas, the immune system of bacteria and archaea. Science, 327(5962):167-170.
2. East-Seletsky A, et al. 2016. Two distinct RNase activities of CRISPR-C2c2 enable guide-RNA processing and RNA detection. Nature. 538:270-3.
3. Abudayyeh O, et al. 2016. C2c2 is a single-component programmable RNA-guided RNA-targeting CRISPR effector. Science. 353:5573.
4. Mahas A, et al. 2022. Characterization of a thermostable Cas13 enzyme for one-pot detection of SARS-CoV-2. Proc Natl Acad Sci U S A. 119(28):e2118260119.