

SPECIFICATION SHEET

Product Name: LwCas13a
Catalog # CS13A-E321H

Product Description: Recombinant full-length, His-tagged *Leptotrichia wadei* protein LwCas13a expressed in *E. coli*. Enzyme supplied with 1 mL of Cas13 reaction buffer II, 10x (CS13-09B).

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 : LwC2c2, EndoRNase, CRISPR-associated endoribonuclease Cas13a

Source : *Leptotrichia wadei*

Accession Numbers : Genbank: [WP_021746774.1](https://www.ncbi.nlm.nih.gov/nuclot/21746774.1)
 UniProt: [U2PWF1](https://www.uniprot.org/uniprot/U2PWF1)

Host : *E. coli*

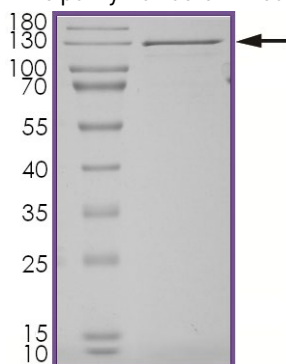
Formulation : Protein stored in 25 mM Tris, 300 mM NaCl, pH 7.5, 0.1 mM TCEP, 50% glycerol

Molecular Weight : Calculated: 139.8 kDa
 Observed: ~125 kDa

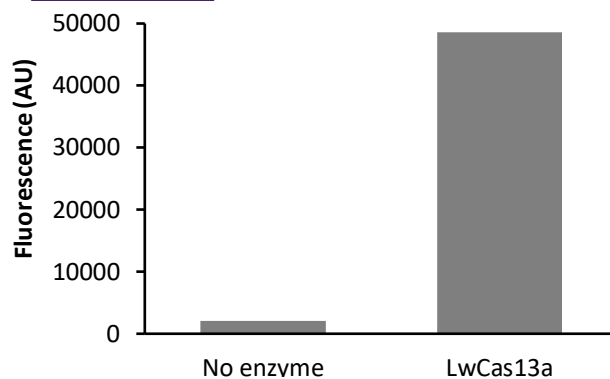
Concentration : 1.0 $\mu\text{g}/\mu\text{L}$
 7.14 pmol/ μg

Purity : The purity was determined to be >90% by densitometry

Gel Image



Activity



LwCas13a nuclease activity assayed using a fluorogenic substrate and 2 nM enzyme according to the activity assay protocol.

Recommendation

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

Scientific Background

: Cas13a is an RNA-guided RNA endonuclease that belongs to the Class 2 type VI CRISPR-Cas system (1). Cas13a possesses both RNA recognition and cleavage activities and cleaves RNA through conserved basic residues within its two HEPN domains (2). Activated Cas13a also induces collateral cleavage of nearby non-targeted RNAs in a nonspecific manner (3). This property of the Cas13a enzyme has been leveraged for the development of sensitive and robust nucleic acid detection tools with applications in both basic research and therapeutics development (4).

References

- : 1. East-Seletsky A, et al. 2016. Two distinct RNase activities of CRISPR-C2c2 enable guide-RNA processing and RNA detection. *Nature*. 538:270-3. 2.
2. Abudayyeh O, et al. 2016. C2c2 is a single-component programmable RNA-guided RNA-targeting CRISPR effector. *Science*. 353:5573 3.
3. Zhang J, You Y. 2020. CRISPR-Cas13a system: A novel approach to precision oncology. *Cancer Biol Med*. 17(1):6-8.
4. Patchsung M, et al. 2020. Clinical validation of a Cas13-based assay for the detection of SARS-CoV-2 RNA. *Nat Biomed Eng*. 4(12):1140-1149.