

SPECIFICATION SHEET

Product Name: FnCas12a
Catalog # CF12A-E311H

Product Description: Recombinant His-tagged *Francisella tularensis* protein expressed in *E. coli*. Enzyme supplied with 1 mL of Cas12 reaction buffer, 10x (CS12-09).

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-associated endonuclease Cas12a, CRISPR-associated endonuclease Cpf1 1, FnCas12a 1, FnCpf1

Source : *Francisella tularensis*

Accession Numbers : Genbank: [WP_003040289](https://www.ncbi.nlm.nih.gov/nuclot/1003040289)
 UniProt: [A00702](https://www.uniprot.org/uniprot/A00702)

Host : *E. coli*

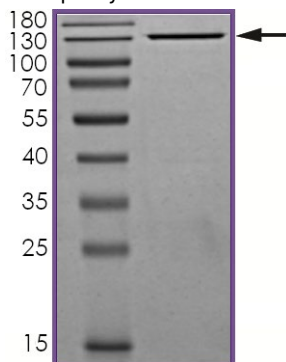
Formulation : Protein stored in 25 mM Tris, 300 mM NaCl, pH7.5, 50% glycerol, 0.1 mM TCEP

Molecular Weight : Calculated: 153.2 kDa
 Observed: ~130 kDa

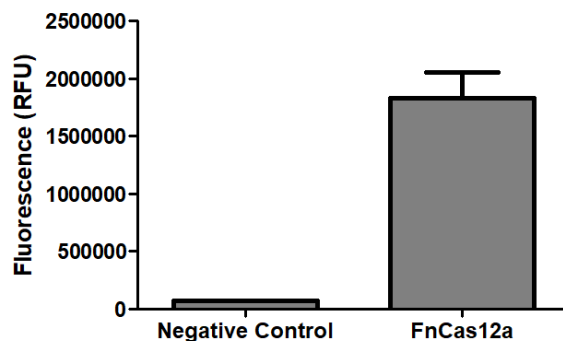
Concentration : 1.0 µg/µL
 6.53 pmol/µg

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

Gel Image



Activity



FnCas12a activity assayed using a fluorogenic substrate and 10 nM of enzyme according to the activity assay protocol.

Recommendation

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

Scientific Background

: CRISPR (clustered regularly interspaced short palindromic repeats) and CRISPR-associated (Cas) proteins constitute the adaptive immune system in bacteria (1-2). This system has been redesigned to create an exemplary genome editing tool for RNA-based therapeutics development (3). Cas12 and Cas13 have collateral nucleotide cleavage activities and are widely used in CRISPR-based diagnostic platforms. FnCas12a from *Francisella tularensis subsp. novicida* shows increased stability at >37°C, making it ideal for LAMP (loop-mediated isothermal amplification) applications (4).

References

- : 1. Horvath, P., et al. 2010. CRISPR/Cas, the immune system of bacteria and archaea. *Science*, 327(5962):167-170.
2. Morange, M. 2015. What history tells us XXXVII. CRISPR-Cas: The discovery of an immune system in prokaryotes. *J. Biosci.* 40(2):221-223.
3. Gier, R.A., et al. 2020. High-performance CRISPR-Cas12a genome editing for combinatorial genetic screening. *Nat. Commun.* 11(1):1-9.
4. Mohanraju P, et al: Development of a Cas12a-Based Genome Editing Tool for Moderate Thermophiles. *CRISPR J.* Feb;4(1):82-91. 2021.