

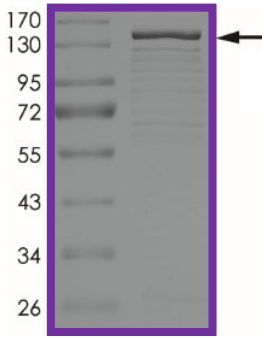
## SPECIFICATION SHEET

**Product Name: LbCas12a, GST-Tagged**
**Catalog # C12CR-E241G**

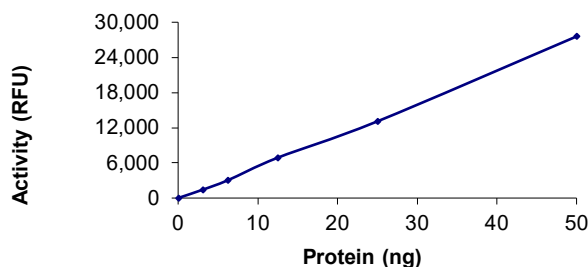
**Product Description:** Recombinant *Lachnospiraceae* LbCas12a (LbCpf1)(1-1227) was expressed in *E. coli* with an N-terminal GST tag. Enzyme supplied with 1 mL of Cas12 reaction buffer, 10x (CS12-09).

**Storage and Stability:** Store at  $-70^{\circ}\text{C}$ . To avoid repeated handling and multiple freeze/thaw cycles, aliquot product into smaller quantities.

### Data for a Sample Lot:

|                          |                                                                                                                 |
|--------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Alternate Names</b>   | : Cpf1 (synthetic construct)                                                                                    |
| <b>Source</b>            | : <i>Lachnospiraceae</i>                                                                                        |
| <b>Accession Numbers</b> | : Genbank: <a href="#">ATB19154.1</a><br>UniProt: <a href="#">A0A5S8WF58</a>                                    |
| <b>Host</b>              | : <i>E. coli</i>                                                                                                |
| <b>Formulation</b>       | : Protein stored in 50 mM Tris-HCl, pH 7.5, 150 mM NaCl, 10 mM glutathione, 0.1 mM EDTA, 1 mM DTT, 10% glycerol |
| <b>Molecular Weight</b>  | : Calculated: 171 kDa<br>Observed: ~150 kDa                                                                     |
| <b>Concentration</b>     | : 0.1 $\mu\text{g}/\mu\text{L}$<br>5.88 pmol/ $\mu\text{g}$                                                     |
| <b>Purity</b>            | : The purity was determined to be >70% by densitometry                                                          |
| <b>Gel Image</b>         |                              |

### Activity



The activity of LbCas12a, GST-Tagged was evaluated 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 their 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 application to RNA-based therapeutics development (3) and disease diagnosis of viral pathogens. Cas12 and Cas13 are recognized as ideal candidates for future development and management of diseases such as cancer (4). Several CRISPR-Cas12-based SARS-CoV-2 detection assays have been developed (5). CRISPR/Cas12 (LbCpf1) is a Cas12 synthetic construct derived from *Lachnospiraceae* bacteria.

## 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. Singh, M., et al. 2022. The era of Cas12 and Cas13 CRISPR-based disease diagnosis. *Critical Reviews in Microbiology*, DOI: 10.1080/1040841X.2021.2025041.
5. Broughton JP, et al: Rapid detection of 2019 novel coronavirus SARS-CoV-2 using a CRISPR-based DETECTR lateral flow assay. medRxiv doi: <https://doi.org/10.1101/2020.03.06.20032334>.