



LbuCas13a (C2c2) protein Instructions

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**Catalog Code: CAS-13B-001
CAS-13B-010**

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Product Information	
Product name	LbuCas13a (C2c2)
Expression system	Escherichia coli
Quality	Recombinant protein
Form	Liquid

Product Introduction

LbuCas13a protein is derived from *Leptotrichia buccalis*. Cas13 forms a functional complex with crRNA, "gliding" over **target RNA**, or DNA[1] and upon successful pairing, Cas13 is specifically activated, trans-cleaving the surrounding reporter molecule. This feature can be used in the field of molecular diagnostics to detect pathogens.

Storage

-20°C. Aliquot after receiving. Avoid repeated freeze-thaw.

Materials supplied

Cat:	CAS-13B-001	CAS-13B-010
Cas13a Reaction Buffer (10X)	1 ml	10 ml
LbuCas13a	5μM*100μL (500pmol)	5μM* 1000μL (5,000pmol)
Diluent Buffer (1X)*	1 ml	10 ml
Positive Control	50μL	50μL

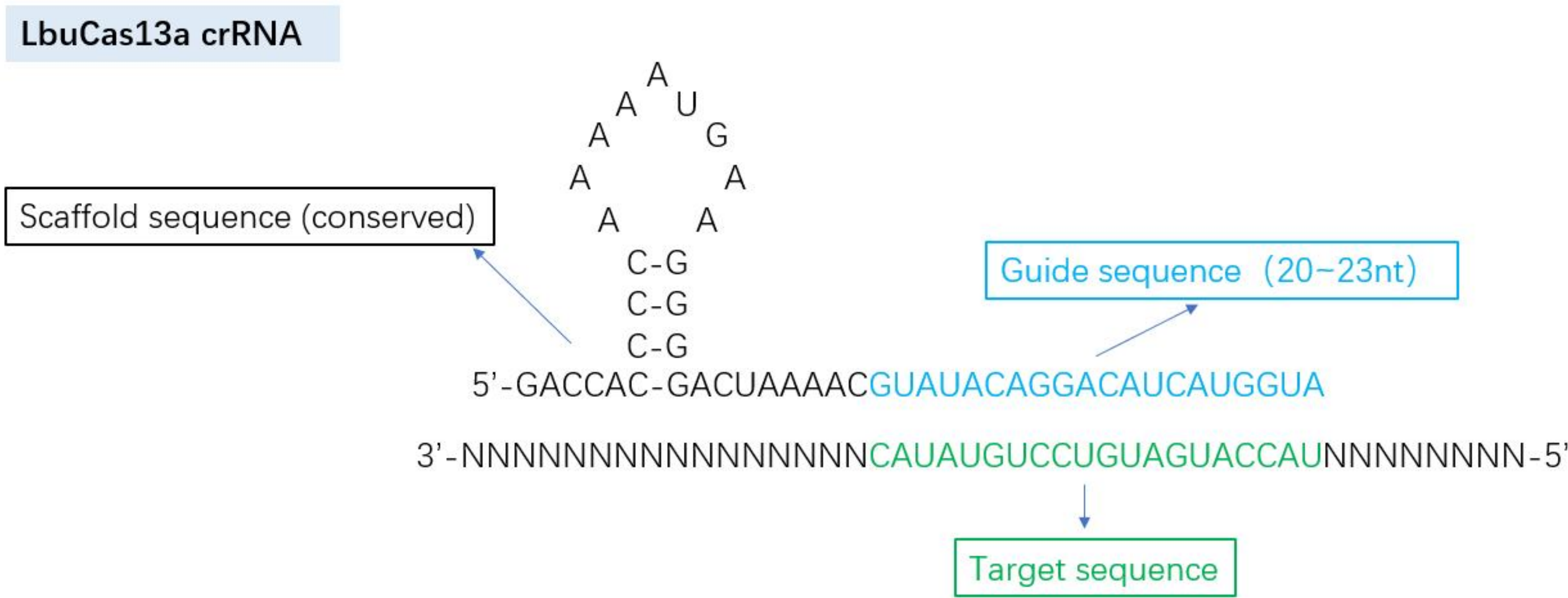
Other materials required

- 1. Reporter: substrate gives signals when digested by Cas13. Recommend EZassay™ Reporter for Cas13a. (Cat.#. RNA-FAM-BHQ) It is labeled with FAM and BHQ1.

Cat:	Item
DNA-FAM-BHQ	Reporter DNA-FAM label
DNA-FAM-BIO	Reporter DNA-FAM-Biotin label

- 2. crRNA/gRNA:
LbuCas13a crRNA scaffold sequence:
5’ - GACCACCCCAAAAUGAAGGGGACUAAAAC-3’

Any question about design, contact info@ezassay.com



Assay procedure

1、Amplification of target DNA/RNA. Following amplification, the product can be transcribed into RNA using T7 RNA polymerase. (Optimal step)
Note: The T7 promoter sequence (5’ -TAATACGACTCACTATAGGG-3’) must be incorporated during primer design.

2、Prepare reaction as described in the table below.

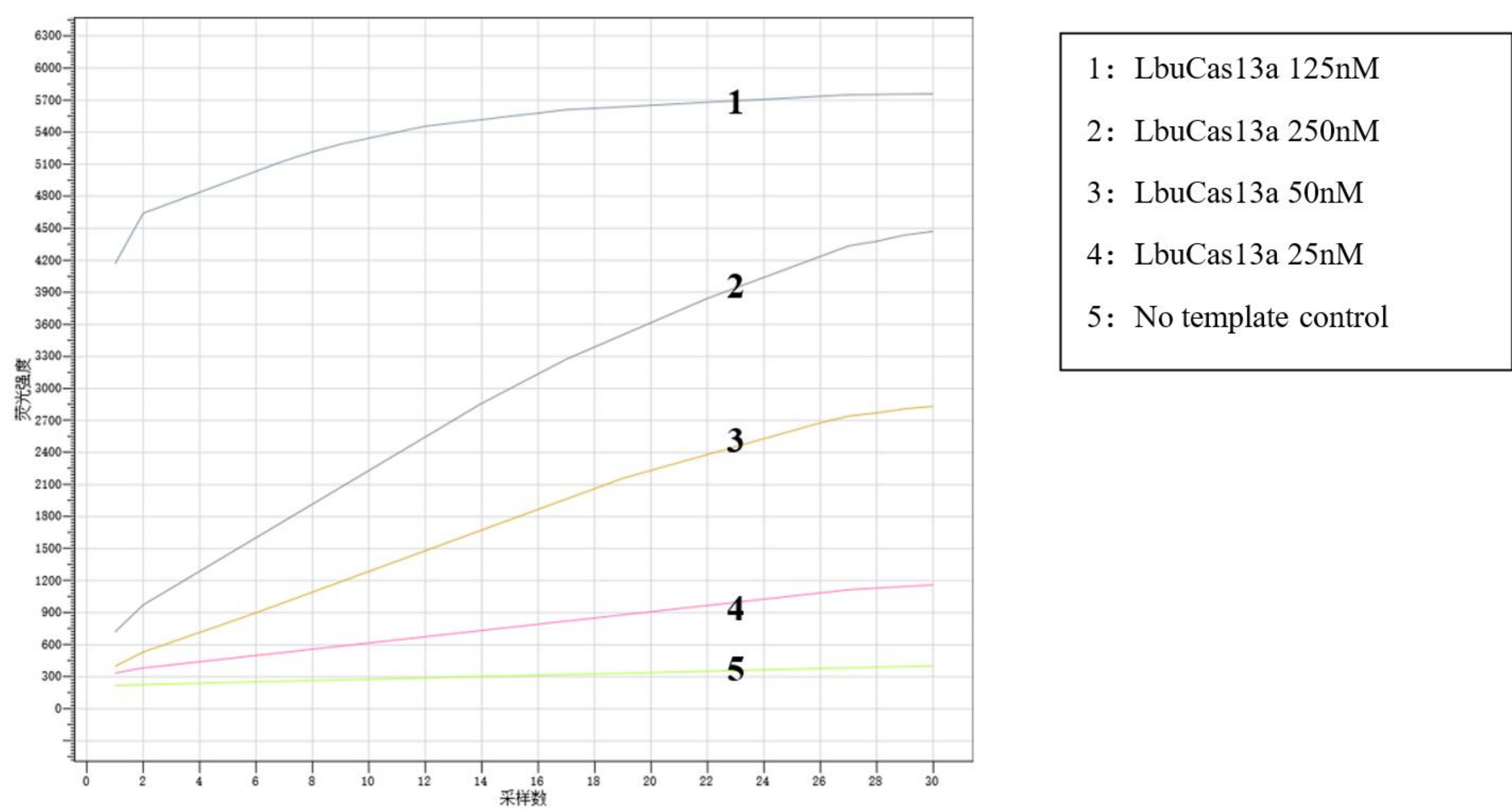
Component	Recommend	Optimization
Cas13a Reaction Buffer (10×)	1×	-
Reporter (fluorescence)	120 nM	40 ~ 2000 nM
crRNA	500 nM	100 ~ 1000 nM
LbuCas13a *	125 nM	100 ~ 500 nM
Target DNA/RNA (from 1st step) **	Optimal	0 ~ 5 μL
H2O	up to 20 μL	-

* Please make dilution before use.

**For positive control group, add 5μL Positive Control. It contains target RNA, crRNA and FAM labelled reporter.

3、Set temperature at 37°C， read fluorescence at FAM channel every 1 minute for 30~60 minutes.

Example of fluorescent result



Notes

1. Cis-cleavage of Cas13a: Guided by crRNA, Cas13a specifically cleaves target RNA/DNA with non-stringent requirements for PAM or PFS sequences on the target.
2. Trans-cleavage of Cas13a: Upon binding to target RNA/DNA, the Cas13a/crRNA complex is activated for trans-cleavage activity, non-specifically degrading any single-stranded RNA (e.g., fluorescent reporters) in the reaction system, thereby releasing a fluorescent signal.
3. Experimental precautions: Maintain a clean workspace and wear gloves and a mask during operations. All consumables (e.g., pipette tips, centrifuge tubes) must be RNase-free.

Reference

[1] Wu, X., Luo, S., Guo, C. et al. LbuCas13a directly targets DNA and elicits strong trans-cleavage activity. Nat. Biomed. Eng (2025).