Product Information

# Anti-LbCas12a (Cpf1) Antibody, Mouse Monoclonal

Clone LbCpf1, Purified from Hybridoma Cell Culture

**SAB4200777**

## Product Description

Monoclonal Anti-LbCpf1 (mouse IgG1 isotype) is derived from the LbCpf1 hybridoma, produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mouse immunized with recombinant Cpf1 from Lachnospiraceae bacterium ND2006. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2. The antibody is purified from culture supernatant of hybridoma cells.

Monoclonal Anti-LbCpf1 specifically recognizes Cpf1 from Lachnospiraceae bacterium ND2006. Monoclonal Anti-LbCpf1 does not cross react with Cpf1 from Acidaminococcus sp. (strain BV3L6), SpCas9 from Streptococcus pyogenes bacteria, nor FnCas9 from Francisella novicida bacteria. The product may be used in several immunochemical techniques including immunoblotting (~ 135 kDa), immunofluorescence, and immunoprecipitation.

Clustered, regularly interspaced, short palindromic repeat (CRISPR) systems encode RNA-guided endonucleases that are essential for bacterial adaptive immunity.[1] Depending on the architecture of the effector-CRISPR RNA (crRNA) interference module, different CRISPR-Cas systems could be assigned into two classes:[1] class 1 systems of multisubunit complex, such as Cascade and class 2 systems of single enzyme, such as Cas9.[2-3]

Cpf1 (CRISPR from Prevotella and Francisella 1) belongs to class 2 type V CRISPR-Cas endonuclease system.[4-5] Cpf1 has several differences from Cas9 protein including cleavage with 5′ overhangs, a shorter guide RNA, and a longer distance between the seed sequence and cleavage site.[5-6]

LbCpf1, Cpf1 from Lachnospiraceae bacterium ND2006, was examined together with 15 members of Cpf1 nuclease family and proved to mediate efficient genome editing in HEK293FT cells with improved results compared to SpCas9.[5] According to the crystal structure, LbCpf1 has a triangle-shaped architecture with a large positively charged channel at the centre.[7] The crRNA binding was shown to induce the pronounced structural rearrangements of LbCpf1, leading to formation of a substrate-binding conformation of LbCpf1.[7] Overexpressed in plant cells, LbCpf1 demonstrated more than 10-fold transcriptional repression of the target gene.[8]

Monoclonal anti-LbCpf1 antibody can provide a useful tool for genome editing research, such as detecting and monitoring LbCpf1 positively transfected cells.

## Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: ~ 1.0 mg/mL

## Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

## Storage/Stability

Store at –20 °C. For continuous use, store at 2–8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

## Product Profile

Immunoblotting: a working concentration of 0.6–1.2 µg/mL is recommended using human HEK-293T cells overexpressing LbCpf1 protein.

Immunofluorescence: a working concentration of 0.25–0.5 µg/mL is recommended using human HEK-293T cells overexpressing LbCpf1 protein.

Immunoprecipitation: a working concentration of 1–2.5 µg/test is recommended using lysate of human HEK-293T cells overexpressing LbCpf1 protein.

**Note:** In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

## References


1. Wright, A.V. et al., *Cell*, **164**, 29-44 (2016).
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4. Schunder, E. et al., *Int. J. Med. Microbiol*., **303**, 51-60 (2013).
5. Zetsche, B. et al., *Cell*, **163**, 759-71 (2015).
6. Kim, H.K. et al., *Nat. Methods*, **14**, 153-9 (2017)
7. Dong, D. et al., *Nature*, **532**, 522–526 (2016).
8. Tang, X. et al., *Nat. Plants*., **3**, 17018 (2017).


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