Revision 3

Store at -20C

#59201

FnCpf1/Cas12a (Strain *U112*) Antibody

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:
W	All	Transfected Only	152	Rabbit	#A0Q7Q2

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

FnCpf1/Cas12a (Strain *U112*) Antibody recognizes transfected levels of total FnCpf1/Cas12a (Strain *U112*) protein. This antibody does not cross-react with Cas9 (*S. pyogenes*), Cas9 (*S. aureus*), and AsCpf1/Cas12a (Strain *BV3L6*) proteins.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala216 of Cpf1/Cas12a from *Francisella tularensis subsp. novicida* (Strain *U112*). Antibodies are purified by protein A and peptide affinity chromatography.

Background

CRISPR-Cas (clustered regularly interspaced short palindromic repeats and CRISPR-associated proteins) are RNA-guided nuclease effectors that are utilized for precise genome editing in mammalian systems (1). Cpf1/Cas12a (CRISPR from *Prevotella* and *Francisella*) proteins are members of the Class 2 CRISPR system (2). Class 2 CRISPR systems, such as the well characterized Cas9, rely on single-component effector proteins to mediate DNA interference (3). Cpf1/Cas12a endonucleases, compared to Cas9 systems, have several unique features that increase the utility of CRISPR-based genome editing techniques: 1) Cpf1/Cas12a-mediated cleavage relies on a single and short CRISPR RNA (crRNA) without the requirement of a trans-activating crRNA (tracrRNA), 2) Cpf1/Cas12a utilizes T-Rich protospacer-adjacent motif (PAM) sequences rather than a G-Rich PAM, and 3) Cpf1/Cas12a generates a staggered, rather than a blunt-ended, DNA double-stranded break (2). These features broaden the utility of using CRISPR-Cas systems for specific gene regulation and therapeutic applications. Several Cpf1/Cas12a bacterial orthologs have been characterized for CRISPR-mediated mammalian genome editing (2,4).~FnCpf1 (Strain *U112*)/Cas12a is a Cpf1/Cas12a enzyme derived from *Francisella novicida U112* (5).

Background References

1. Cong, L. et al. (2013) *Science* 339, 819-23.
2. Zetsche, B. et al. (2015) *Cell* 163, 759-71.
3. Horvath, P. and Barrangou, R. (2010) *Science* 327, 167-70.
4. Zhang, Y. et al. (2017) *Sci Adv* 3, e1602814.
5. Zetsche, B. et al. (2015) *Cell* 163, 759-71.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

All: All Species Expected

Trademarks and Patents

Limited Uses

force or effect.

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