

Cas9 (*C. jejuni*) Antibody

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

Applications: W	Reactivity: All	Sensitivity: Transfected Only	MW (kDa): 60, 70	Source/Isotype: Rabbit	UniProt ID: #Q0P897	Entrez-Gene Id: 905809
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Product Usage Information**Application**

Western Blotting

Dilution

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

Cas9 (*C. jejuni*) recognizes transfected Cas9 (*C. jejuni*) protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Val965 of *C. jejuni* Cas9 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

The CRISPR associated protein 9 (Cas9) is an RNA-guided DNA nuclease and part of the CRISPR antiviral immunity system that provides adaptive immunity against extra chromosomal genetic material (1). The CRISPR antiviral mechanism of action involves three steps: (i), acquisition of foreign DNA by host bacterium; (ii), synthesis and maturation of CRISPR RNA (crRNA), followed by the formation of RNA-Cas nuclease protein complexes; and (iii), target interference through recognition of foreign DNA by the complex and its cleavage by Cas nuclease activity (2). The type II CRISPR/Cas antiviral immunity system provides a powerful tool for precise genome editing and has potential for specific gene regulation and therapeutic applications (3). The Cas9 protein and a guide RNA consisting of a fusion between a crRNA and a trans-activating crRNA (tracrRNA) must be introduced or expressed in a cell. A 20-nucleotide sequence at the 5' end of the guide RNA directs Cas9 to a specific DNA target site. As a result, Cas9 can be "programmed" to cut various DNA sites both *in vitro* and in cells and organisms. CRISPR/Cas9 genome editing tools have been used in many organisms, including mouse and human cells (4,5). Research studies demonstrate that CRISPR can be used to generate mutant alleles or reporter genes in rodents and primate embryonic stem cells (6-8).

Cas9 (*C. jejuni*) is a Cas9 ortholog that is smaller, but as efficient, as the more commonly used Cas9 ortholog, Cas9 (*S. Pyogenes*) (9).

Background References

1. Horvath, P. and Barrangou, R. (2010) *Science* 327, 167-70.
2. Wiedenheft, B. et al. (2012) *Nature* 482, 331-8.
3. Singh, P. et al. (2015) *Genetics* 199, 1-15.
4. Cong, L. et al. (2013) *Science* 339, 819-23.
5. Mali, P. et al. (2013) *Science* 339, 823-6.
6. Li, D. et al. (2013) *Nat Biotechnol* 31, 681-3.
7. Shen, B. et al. (2013) *Cell Res* 23, 720-3.
8. Niu, Y. et al. (2014) *Cell* 156, 836-43.
9. Kim, E. et al. (2017) *Nat Commun* 8, 14500.

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

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