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#97982

Cas9 (7A9-3A3) Mouse mAb (HRP Conjugate)

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Entrez-Gene ID #901176
UniProt ID #Q99ZW2

For Research Use Only. Not For Use In Diagnostic Procedures.

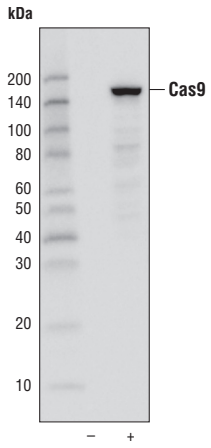
Applications	Species Cross-Reactivity	Molecular Wt.	Isotype
W Transfected Only	All	160 kDa	Mouse IgG1

Description: This Cell Signaling Technology antibody is conjugated to the carbohydrate groups of horseradish peroxidase (HRP) via its amine groups. The HRP conjugated antibody is expected to exhibit the same species cross-reactivity as the unconjugated Cas9 (7A9-3A3) Mouse mAb #14697.

Background: The CRISPR associated protein 9 (Cas9) is an RNA-guided DNA nuclease and part of the *Streptococcus pyogenes* 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).

Specificity/Sensitivity: Cas9 (7A9-3A3) Mouse mAb (HRP Conjugate) recognizes transfected levels of total Cas9 protein.

Source/Purification: Monoclonal antibody is produced by immunizing animals with recombinant protein specific to the amino terminus of Cas9 from *Streptococcus pyogene*.



Western blot analysis of Cas9 expression in untreated 293 cells (–) or 293 cells transfected with a construct expressing Cas9 (+) using Cas9 (7A9-3A3) Mouse mAb (HRP Conjugate).

Storage: Supplied in 136 mM NaCl, 2.6 mM KCl, 12 mM sodium phosphate (pH 7.4) dibasic, 2 mg/ml BSA, and 50% glycerol. Store at –20°C. *Do not aliquot the antibody.*

HRP-conjugated antibodies do not require incubation with a secondary antibody.

Recommended Antibody Dilutions:

Western blotting	1:1000

For product specific protocols and a complete listing of recommended companion products please see the product web page at www.cellsignal.com

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.

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

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Applications: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide **Species Cross-Reactivity:** **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—Horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.