SANTA CRUZ BIOTECHNOLOGY, INC.

Cas9 (7A9-3A3): sc-517386

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cas9 (CRISPR-associated endonuclease Cas9/Csn1) is a 1,368 amino acid RNA-guided endonuclease of *Streptococcus pyogenes* origin. Exclusively associated with the type II CRISPR locus, Cas9 nuclease consists of an RNA binding domain, an α helix recognition lobe (REC), a nuclease lobe that includes RuvC and HNH for DNA cleavage, and a protospacer adjacent motif (PAM) interacting site. Cas9 nuclease is involved in catalyzing site-specific double strand DNA cleavage. Characterized as being efficient in targeting genomic loci, Cas9 nuclease facilitates targeted genome editing. Cas9 nuclease along with short CRISPR RNAs (crRNAs) function as an RNA-guided endonuclease with RNA-directed target sequence recognition and protein-mediated DNA cleavage in the CRISPR/Cas system. The CRISPR/Cas system is an adaptive immune defense mechanism used by *Archea* and bacteria for the degradation of foreign genetic material, and has been manipulated to become a powerful tool in genomic engineering.

REFERENCES

1. Käbisch, S., et al. 1986. Changes in lymphocyte subpopulations in relation to anesthesia procedure. Anasth. Intensivther. Notfallmed. 21: 327-332.
2. Deveau, H., et al. 2010. CRISPR/Cas system and its role in phage-bacteria interactions. Annu. Rev. Microbiol. 64: 475-493.

SOURCE

Cas9 (7A9-3A3) is a mouse monoclonal antibody raised against a recombinant protein corresponding to the N-terminal region of Cas9 of *Streptococcus pyogenes* origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Cas9 (7A9-3A3) is available conjugated to agarose (sc-517386 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-517386 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-517386 PE), fluorescein (sc-517386 FITC), Alexa Fluor® 488 (sc-517386 AF488), Alexa Fluor® 546 (sc-517386 AF546), Alexa Fluor® 594 (sc-517386 AF594) or Alexa Fluor® 647 (sc-517386 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-517386 AF680) or Alexa Fluor® 790 (sc-517386 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

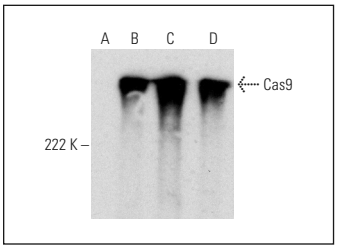
Cas9 (7A9-3A3) is recommended for detection of transfected levels of total Cas9 protein; recognizes Cas9 variants including dCas9 (nuclease deficient Cas9) of *Streptococcus pyogenes* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

Molecular Weight (observed) of Cas9: 160 kDa.

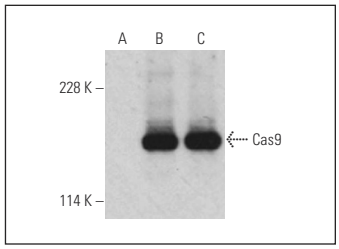
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



Cas9 (7A9-3A3): sc-517386. Western blot analysis of Cas9 expression in non-transfected: sc-117752 (**A**) and *Streptococcus pyogenes* Cas9-transfected (**B**, **C** & **D**) 293T whole cell lysates. CRISPR/Cas9 plasmids used: sc-400099 (**B**), sc-400193 (**C**) and sc-413603 (**D**).



Cas9 (7A9-3A3) HRP: sc-517386 HRP. Direct western blot analysis of Cas9 expression in non-transfected: sc-117752 (**A**), human Cytokeratin 10 CRISPR/Cas9 KO Plasmid transfected: sc-400193 (**B**) and sc-413603 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Chang, Y.K., et al. 2018. SOX2 activation using CRISPR/dCas9 promotes wound healing in corneal endothelial cells. Stem Cells 36: 1851-1862.
2. Giri, S. and Shaha, C. 2019. *Leishmania donovani* parasite requires Atg8 protein for infectivity and survival under stress. Cell Death Dis. 10: 808.
3. Mendoza, S.D., et al. 2020. A bacteriophage nucleus-like compartment shields DNA from CRISPR nucleases. Nature 577: 244-248.
4. Grotz, A.K., et al. 2020. A CRISPR/Cas9 genome editing pipeline in the EndoC-βH1 cell line to study genes implicated in β cell function. Wellcome Open Res. 4: 150.
5. Mo, J., et al. 2021. Humanized neurofibroma model from induced pluripotent stem cells delineates tumor pathogenesis and developmental origins. J. Clin. Invest. 131: e139807.
6. Volland, A., et al. 2021. Heparan sulfate proteoglycans serve as alternative receptors for low affinity LCMV variants. PLoS Pathog. 17: e1009996.
7. Regner, M.J., et al. 2021. A multi-omic single-cell landscape of human gynecologic malignancies. Mol. Cell 81: 4924-4941.e10.
8. Dromel, P.C., et al. 2021. A bioinspired gelatin-hyaluronic acid-based hybrid interpenetrating network for the enhancement of retinal ganglion cells replacement therapy. NPJ Regen. Med. 6: 85.
9. Wilk, C., et al. 2021. CRISPR/Cas9-mediated demethylation of FOXP3-TSDR toward Treg-characteristic programming of Jurkat T cells. Cell. Immunol. 371: 104471.
10. Cardinali, B., et al. 2022. Time-controlled and muscle-specific CRISPR/Cas9-mediated deletion of CTG-repeat expansion in the DMPK gene. Mol. Ther. Nucleic Acids 27: 184-199.

RESEARCH USE

For research use only, not for use in diagnostic procedures.