10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Cas9 Monoclonal Antibody

Mouse Anti Human Monoclonal Antibody
Catalog # ABV11715

Product Information

Application	WB, IF, IP
Primary Accession	Q99ZW2
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	Mouse IgG1κ
Clone Names	7A9
Calculated MW	158441

Additional Information

Positive Control	IF, IP, WB
Application & Usage	Immunofluorescence: 1:500-1:2,000; Immunoprecipitation: 1:20; Western Blot: 1:1,000
Other Names	CRISPR-associated endonuclease Cas9/Csn1, CRISPR associated protein 9, SpyCas9
Target/Specificity	Cas9
Antibody Form	Liquid
Appearance	Colorless liquid
Formulation	PBS containing 0.02% sodium azide.
Handling	The antibody solution should be gently mixed before use.
Reconstitution & Storage	-20 °C
Background Descriptions	
Precautions	Cas9 Monoclonal Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

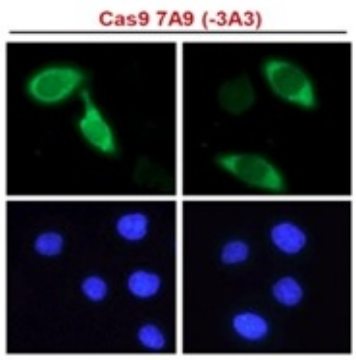
Name	cas9 {ECO:0000255|HAMAP-Rule:MF_01480, ECO:0000303|PubMed:22745249}
Function	CRISPR (clustered regularly interspaced short palindromic repeat) is an adaptive immune system that provides protection against mobile genetic elements (viruses, transposable elements and conjugative plasmids)

(PubMed:21455174). CRISPR clusters contain spacers, sequences complementary to antecedent mobile elements, and target invading nucleic acids. CRISPR clusters are transcribed and processed into CRISPR RNA (crRNA). In type II CRISPR systems correct processing of pre-crRNA requires a trans-encoded small RNA (tracrRNA), endogenous ribonuclease 3 (rnc) and this protein. The tracrRNA serves as a guide for ribonuclease 3-aided processing of pre-crRNA; Cas9 only stabilizes the pre-crRNA:tracrRNA interaction and has no catalytic function in RNA processing (PubMed:24270795). Subsequently Cas9/crRNA/tracrRNA endonucleolytically cleaves linear or circular dsDNA target complementary to the spacer; Cas9 is inactive in the absence of the 2 guide RNAs (gRNA). The target strand not complementary to crRNA is first cut endonucleolytically, then trimmed 3'-5' exonucleolytically. DNA-binding requires protein and both gRNAs, as does nuclease activity. Cas9 recognizes the protospacer adjacent motif (PAM) in the CRISPR repeat sequences to help distinguish self versus nonself, as targets within the bacterial CRISPR locus do not have PAMs. DNA strand separation and heteroduplex formation starts at PAM sites; PAM recognition is required for catalytic activity (PubMed:24476820). Confers immunity against a plasmid with homology to the appropriate CRISPR spacer sequences (CRISPR interference) (PubMed:21455174).

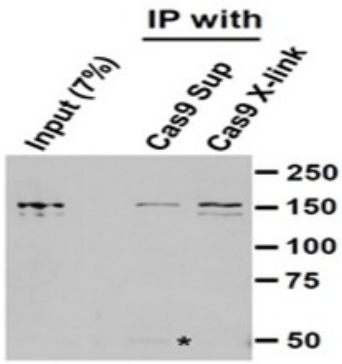
Background

Cas9 (CRISPR associated protein 9) is an RNA-guided DNA endonuclease enzyme associated with the CRISPR (Clustered Regularly Interspersed Palindromic Repeats) adaptive immunity system in Streptococcus pyogenes and other bacteria. Cas9 is used to interrogate and cleave foreign DNA, such as invading bacteriophage DNA or plasmid DNA. This is accomplished by unwinding foreign DNA and checking for if it is complementary to the 20 base pair spacer region of the guide RNA. If the DNA substrate is complementary to the guide RNA, Cas9 cleaves the invading DNA.

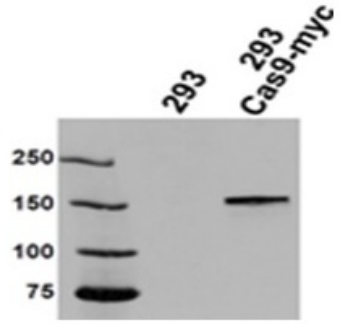
Images



Western blot analysis of Cas9 in HEK293 cells transiently transfected with pMLM3613myc.



Immunoprecipitation of HEK293T cells expressing N-terminally Flag-tagged S.pyogenes Cas9 lysed 72 hours post transfection.



Immunofluorescence analysis of Hela cells transiently transfeced with an N-terminally Flag-tagged S.pyogenes Cas9 expression vector.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.