10320 Camino Santa Fe, Suite G
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Cas9 Monoclonal Antibody
Mouse Anti Human Monoclonal Antibody
Catalog # ABV11715

Specification

Cas9 Monoclonal Antibody - Product Information

Application	**IF, IP, WB**
Primary Accession	Q99ZW2
Reactivity	**Human**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**Mouse IgG1κ**
Calculated MW	**158441**

Cas9 Monoclonal Antibody - 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.

Cas9 Monoclonal Antibody - Protein Information

Name cas9 {ECO:0000255|HAMAP-Rule:MF_01480, ECO:0000303|PubMed:22745249}

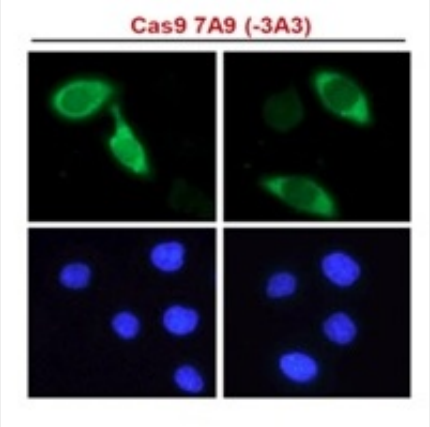
Function
CRISPR (clustered regularly interspaced short palindromic repeat) is an adaptive immune system that provides protection against mobile genetic elements (viruses, transposable elements and conjugative plasmids) (PubMed:21455174). CRISPR clusters contain spacers, sequences complementary to antecedent 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).

Cas9 Monoclonal Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

Cas9 Monoclonal Antibody - Images



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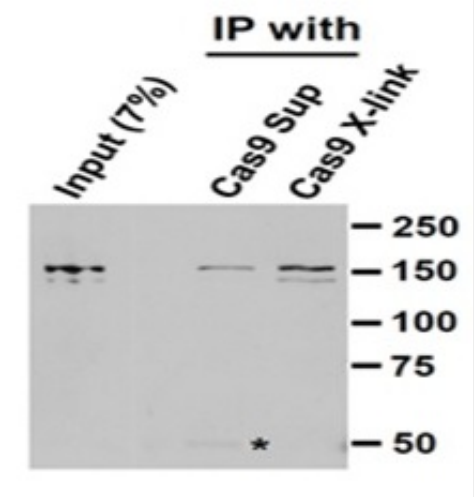
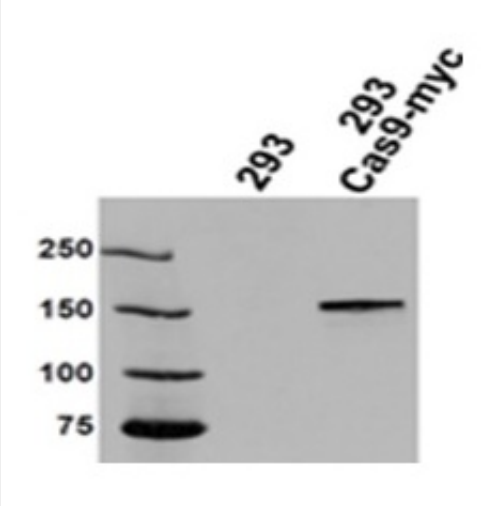
Western blot analysis of Cas9 in HEK293 cells transiently transfected with pMLM3613myc.



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.

Cas9 Monoclonal Antibody - 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.