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HAUSP Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1348a

Product Information

Application	WB, E
Primary Accession	Q93009
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	5F11
Isotype	IgG1
Calculated MW	128302
Description	USP7 or HAUSP is a ubiquitin specific protease or a deubiquitylating enzyme that cleaves ubiquitin from its substrates. Since ubiquitylation (polyubiquitination) is most commonly associated with the stability and degradation of cellular proteins, HAUSP acitivity generally stabilizes its substrate proteins. HAUSP is most popularly known as a direct antagonist of Mdm2, the E3 ubiquitin ligase for the tumor suppressor protein, p53.Normally, p53 levels are kept low in part due to Mdm2-mediated ubiquitylation and degradation of p53. Interestingly, in response to oncogenic insults, HAUSP can deubiquitinate p53 and protect p53 from Mdm2-mediated degradation, indicating that it may possess a tumor suppressor function for the immediate stabilization of p53 in response to stress. Another important role of HAUSP function involves the oncogenic stabilization of p53. Oncogenes such as Myc and E1A are thought to activate p53 through a p19 alternative reading frame (p19ARF, also called ARF)-dependent pathway, although some evidence suggests ARF is not essential in this process. An intriguing possibility is that HAUSP provides an alternative pathway for safeguarding the cell against oncogenic insults.
Immunogen	Purified recombinant fragment of human HAUSP expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	7874
Other Names	Ubiquitin carboxyl-terminal hydrolase 7, 3.4.19.12, Deubiquitinating enzyme 7, Herpesvirus-associated ubiquitin-specific protease, Ubiquitin thioesterase 7, Ubiquitin-specific-processing protease 7, USP7, HAUSP
Dilution	WB~~1/500 - 1/2000 E~~N/A

Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	HAUSP Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	USP7 {ECO:0000303|PubMed:12093161, ECO:0000312|HGNC:HGNC:12630}
Function	Hydrolase that deubiquitinates target proteins such as ARMC5, FOXO4, DEPTOR, KAT5, p53/TP53, MDM2, ERCC6, DNMT1, UHRF1, PTEN, KMT2E/MLL5 and DAXX (PubMed:11923872, PubMed:15053880, PubMed:16964248, PubMed:18716620, PubMed:25283148, PubMed:25865756, PubMed:26678539, PubMed:28655758, PubMed:33544460, PubMed:35216969). Together with DAXX, prevents MDM2 self-ubiquitination and enhances the E3 ligase activity of MDM2 towards p53/TP53, thereby promoting p53/TP53 ubiquitination and proteasomal degradation (PubMed:15053880, PubMed:16845383, PubMed:18566590, PubMed:20153724). Deubiquitinates p53/TP53, preventing degradation of p53/TP53, and enhances p53/TP53-dependent transcription regulation, cell growth repression and apoptosis (PubMed:25283148). Deubiquitinates p53/TP53 and MDM2 and strongly stabilizes p53/TP53 even in the presence of excess MDM2, and also induces p53/TP53-dependent cell growth repression and apoptosis (PubMed:11923872, PubMed:26786098). Deubiquitination of FOXO4 in presence of hydrogen peroxide is not dependent on p53/TP53 and inhibits FOXO4-induced transcriptional activity (PubMed:16964248). In association with DAXX, is involved in the deubiquitination and translocation of PTEN from the nucleus to the cytoplasm, both processes that are counteracted by PML (PubMed:18716620). Deubiquitinates KMT2E/MLL5 preventing KMT2E/MLL5 proteasomal-mediated degradation (PubMed:26678539). Involved in cell proliferation during early embryonic development. Involved in transcription-coupled nucleotide excision repair (TC-NER) in response to UV damage: recruited to DNA damage sites following interaction with KIAA1530/UVSSA and promotes deubiquitination of ERCC6, preventing UV- induced degradation of ERCC6 (PubMed:22466611, PubMed:22466612). Involved in maintenance of DNA methylation via its interaction with UHRF1 and DNMT1: acts by mediating deubiquitination of UHRF1 and DNMT1, preventing their degradation and promoting DNA methylation by DNMT1 (PubMed:21745816, PubMed:22411829). Deubiquitinates alkylation repair enzyme ALKBH3. OTUD4 recruits USP7 and USP9X to stabilize ALKBH3, thereby promoting the repair of alkylated DNA lesions (PubMed:25944111). Acts as a chromatin regulator via its association with the Polycomb group (PcG) multiprotein PRC1-like complex; may act by deubiquitinating components of the PRC1-like complex (PubMed:20601937). Able to mediate deubiquitination of histone H2B; it is however unsure whether this activity takes place in vivo (PubMed:20601937). Exhibits a preference towards 'Lys-48'-linked ubiquitin chains (PubMed:22689415). Increases regulatory T-cells (Treg) suppressive capacity by deubiquitinating and stabilizing the transcription factor FOXP3 which is crucial for Treg cell function (PubMed:23973222). Plays a role in the maintenance of the circadian clock periodicity via deubiquitination and stabilization of the CRY1 and CRY2 proteins (PubMed:27123980). Deubiquitinates REST, thereby stabilizing REST and promoting the maintenance of neural progenitor cells (PubMed:21258371). Deubiquitinates SIRT7, inhibiting SIRT7 histone deacetylase activity and regulating gluconeogenesis (PubMed:28655758). Involved in the regulation of WASH-dependent actin polymerization at the surface of endosomes and the regulation of endosomal protein recycling

	(PubMed:26365382). It maintains optimal WASH complex activity and precise F-actin levels via deubiquitination of TRIM27 and WASHC1 (PubMed:26365382). Mediates the deubiquitination of phosphorylated DEPTOR, promoting its stability and leading to decreased mTORC1 signaling (PubMed:35216969).
Cellular Location	Nucleus. Cytoplasm Nucleus, PML body. Chromosome. Note=Present in a minority of ND10 nuclear bodies. Association with ICP0/VMW110 at early times of infection leads to an increased proportion of USP7-containing ND10 Colocalizes with ATXN1 in the nucleus. Colocalized with DAXX in speckled structures. Colocalized with PML and PTEN in promyelocytic leukemia protein (PML) nuclear bodies
Tissue Location	Expressed in neural progenitor cells (at protein level) (PubMed:21258371). Widely expressed. Overexpressed in prostate cancer.

References

1. Cell Death Differ. 2007 Jul;14(7):1350-60. 2. Cancer Cell. 2007 Oct;12(4):342-54. 3. Blood. 2009 Apr 2;113(14):3264-75.

Images

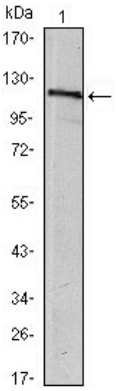

Figure 1: Western blot analysis using HAUSP mouse mAb against MCF-7 (1) cell lysate.

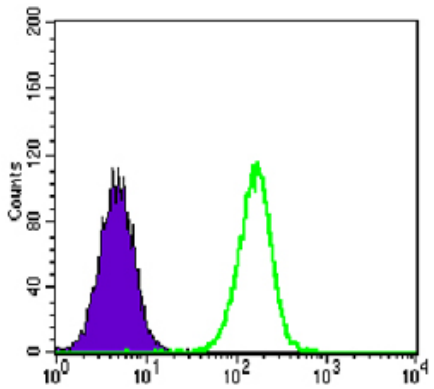

Figure 2: Flow cytometric analysis of A549 cells using anti-TCF3 mAb (green) and negative control (purple).