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Anti-USP7 Antibody

Catalog # AP96111

Product Information

Application	WB, IHC, FC, IF/IC
Primary Accession	Q93009
Reactivity	Human, Mouse, Rat, Mk
Host	Mouse
Clonality	Monoclonal
Calculated MW	128302

Additional Information

Gene ID	7874
Other Names	HAUSP; Ubiquitin carboxyl-terminal hydrolase 7; Deubiquitinating enzyme 7; Herpesvirus-associated ubiquitin-specifIC, protease; Ubiquitin thioesterase 7; Ubiquitin-specifIC, -processing protease 7
Target/Specificity	Recombinant fusion protein of human USP7 expressed in E. Coli
Dilution	WB~~WB (1/500 - 1/1000) IHC~~1:100~500 FC~~FC (1/100 - 1/200) IF/IC~~N/A
Format	Mouse IgG2b. Liquid in PBS, pH 7.3, 30% glycerol, and 0.01% sodium azide.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

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). Deubiquitinates H2AB1, H2BC4 and H2BC22 (By similarity).

Cellular Location

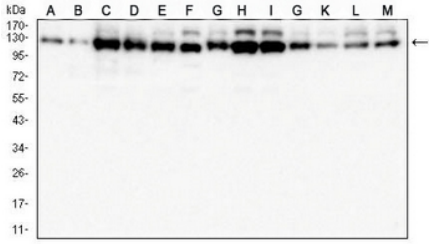
Nucleus. Cytoplasm Nucleus, PML body. Chromosome. Note=Present in a minority of ND10 nuclear bodies (PubMed:9034339). Association with ICP0/VMW110 at early times of infection leads to an increased proportion of USP7-containing ND10 (PubMed:9034339). Colocalizes with ATXN1 in the nucleus (PubMed:12093161). Colocalized with DAXX in speckled structures (PubMed:16845383). Colocalized with PML and PTEN in promyelocytic leukemia protein (PML) nuclear bodies (PubMed:18716620). Interaction with FAM170A promotes its nuclear translocation (By similarity) {ECO:0000250|UniProtKB:Q6A4J8, ECO:0000269|PubMed:12093161, ECO:0000269|PubMed:16845383, ECO:0000269|PubMed:18716620, ECO:0000269|PubMed:9034339}

Tissue Location

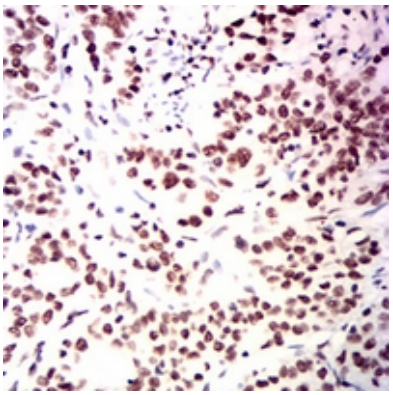
Expressed in neural progenitor cells (at protein level) (PubMed:21258371). Widely expressed. Overexpressed in prostate cancer.

Images

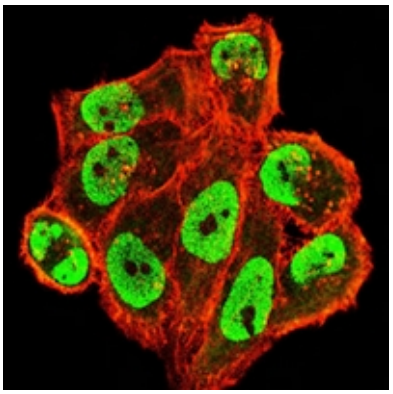
Western blot analysis of USP7 expression in Hela (A), A431 (B), MCF7 (C), Jurkat (D), K562 (E), HepG2 (F), A549



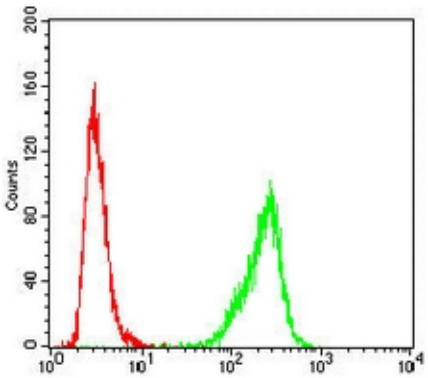
(G), HCT116 (H), HT29 (I), SW480 (J), C6 (K), COS7 (L), NIH/3T3 (M) whole cell lysates. (Predicted band size: 128 kD; Observed band size: 128 kD)



Immunohistochemical analysis of USP7 staining in human cervical cancer formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Immunofluorescent analysis of USP7 staining in Hela cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 5-10 minutes and blocked with 3% BSA-PBS for 30 minutes at room temperature. Cells were probed with the primary antibody in 3% BSA-PBS and incubated overnight at 4 °C in a hidified chamber. Cells were washed with PBST and incubated with an AF488-conjugated secondary antibody (green) in PBS at room temperature in the dark. Phalloidin - AF594 was used to stain Actin filaments (red). DAPI was used to stain the cell nuclei (blue).



Flow cytometric analysis of HeLa cells using Anti-USP7 Antibody (green) and negative control (red).

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