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USP10 Antibody

Catalog # ASC11147

Product Information

Application	WB, IF, ICC, E
Primary Accession	Q14694
Other Accession	NP_005144, 119220605
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	87134
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	USP10 antibody can be used for detection of USP10 by Western blot at 1 - 2 g/mL. Antibody can also be used for immunocytochemistry starting at 20 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	9100
Other Names	Ubiquitin carboxyl-terminal hydrolase 10, 3.4.19.12, Deubiquitinating enzyme 10, Ubiquitin thioesterase 10, Ubiquitin-specific-processing protease 10, USP10, KIAA0190
Target/Specificity	USP10;
Reconstitution & Storage	USP10 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	USP10 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	USP10 {ECO:0000303|PubMed:11439350, ECO:0000312|HGNC:HGNC:12608}
Function	Hydrolase that can remove conjugated ubiquitin from target proteins such as p53/TP53, RPS2/us5, RPS3/us3, RPS10/eS10, BECN1, SNX3 and CFTR (PubMed:11439350, PubMed:18632802, PubMed:31981475). Acts as an essential regulator of p53/TP53 stability: in unstressed cells, specifically deubiquitinates p53/TP53 in the cytoplasm, leading to counteract MDM2 action and stabilize p53/TP53 (PubMed:20096447). Following DNA damage, translocates to the nucleus and deubiquitinates p53/TP53, leading to regulate

	the p53/TP53-dependent DNA damage response (PubMed:20096447). Component of a regulatory loop that controls autophagy and p53/TP53 levels: mediates deubiquitination of BECN1, a key regulator of autophagy, leading to stabilize the PIK3C3/VPS34-containing complexes (PubMed:21962518). In turn, PIK3C3/VPS34-containing complexes regulate USP10 stability, suggesting the existence of a regulatory system by which PIK3C3/VPS34-containing complexes regulate p53/TP53 protein levels via USP10 and USP13 (PubMed:21962518). Does not deubiquitinate MDM2 (PubMed:20096447). Plays a key role in 40S ribosome subunit recycling when a ribosome has stalled during translation: acts both by inhibiting formation of stress granules, which store stalled translation pre-initiation complexes, and mediating deubiquitination of 40S ribosome subunits (PubMed:27022092, PubMed:31981475, PubMed:34348161, PubMed:34469731). Acts as a negative regulator of stress granules formation by lowering G3BP1 and G3BP2 valence, thereby preventing G3BP1 and G3BP2 ability to undergo liquid- liquid phase separation (LLPS) and assembly of stress granules (PubMed:11439350, PubMed:27022092, PubMed:32302570). Promotes 40S ribosome subunit recycling following ribosome dissociation in response to ribosome stalling by mediating deubiquitination of 40S ribosomal proteins RPS2/us5, RPS3/us3 and RPS10/eS10, thereby preventing their degradation by the proteasome (PubMed:31981475, PubMed:34348161, PubMed:34469731). Part of a ribosome quality control that takes place when ribosomes have stalled during translation initiation (iRQC): USP10 acts by removing monoubiquitination of RPS2/us5 and RPS3/us3, promoting 40S ribosomal subunit recycling (PubMed:34469731). Deubiquitinates CFTR in early endosomes, enhancing its endocytic recycling (PubMed:19398555). Involved in a TANK-dependent negative feedback response to attenuate NF-kappa-B activation via deubiquitinating IKBKG or TRAF6 in response to interleukin-1-beta (IL1B) stimulation or upon DNA damage (PubMed:25861989). Deubiquitinates TBX21 leading to its stabilization (PubMed:24845384). Plays a negative role in the RLR signaling pathway upon RNA virus infection by blocking the RIGI-mediated MAVS activation. Mechanistically, removes the unanchored 'Lys-63'-linked polyubiquitin chains of MAVS to inhibit its aggregation, essential for its activation (PubMed:37582970).
Cellular Location	Cytoplasm. Nucleus. Early endosome. Note=Cytoplasmic in normal conditions (PubMed:20096447). After DNA damage, translocates to the nucleus following phosphorylation by ATM (PubMed:20096447)
Tissue Location	Widely expressed..

Background

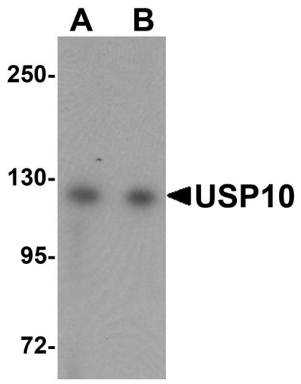
USP10 Antibody: USP10, also known as ubiquitin specific peptidase 10, belongs to the ubiquitin-specific protease family of cysteine proteases. USP10 functions to catalyze the cleavage of ubiquitin from ubiquitin-conjugated protein substrates such as p53/TP53, SNX3 and CFTR. USP10 has been identified as a subunit of DNA-bound androgen receptor (AR) complexes and may play a role in the activity of the DNA-bound androgen receptor complex. USP10 also acts as an essential regulator of p53/TP53 stability and is thought to function as a tumor suppressor.

References

D'Andrea A and Pellman D. Deubiquitinating enzymes: a new class of biological regulators. Crit. Rev. Biochem. Mol. Biol.1998; 33:337-52.
Bomberger JM, Barnaby RL, and Stanton BA. The deubiquitinating enzyme USP10 regulates the endocytic recycling of CFTR in airway epithelial cells. Channels2010; 4(3).
Faus H, Meyer HA, Huber M, et al. The ubiquitin-specific protease USP10 modulates androgen receptor function. Mol. Cell. Endocrinol.2005; 245:138-46.

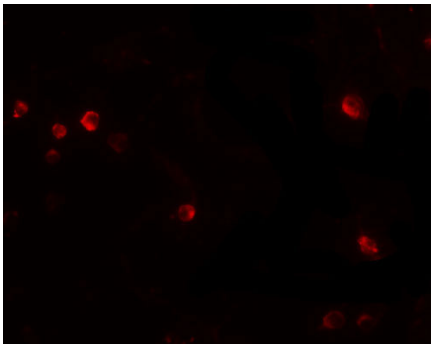
Yuan J, Luo K, Zhang L, et al. USP10 regulates p53 localization and stability by deubiquitinating p53. Cell 2010; 140:384-96.

Images



Western blot analysis of USP10 in Jurkat cell lysate with USP10 antibody at (A) 1 and (B) 2 µg/mL.

Immunocytochemistry of USP10 in Jurkat cells with USP10 antibody at 20 µg/mL.



Immunofluorescence of USP10 in Jurkat cells with USP10 antibody at 20 µg/mL.