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USP2 Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2131a

Product Information

Application	WB, IHC-P, E
Primary Accession	O75604
Reactivity	Human, Rat, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	68072
Antigen Region	71-101

Additional Information

Gene ID	9099
Other Names	Ubiquitin carboxyl-terminal hydrolase 2, 41 kDa ubiquitin-specific protease, Deubiquitinating enzyme 2, Ubiquitin thioesterase 2, Ubiquitin-specific-processing protease 2, USP2, UBP41
Target/Specificity	This USP2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 71-101 amino acids from the N-terminal region of human USP2.
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	USP2 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	USP2
Synonyms	UBP41
Function	Hydrolase that deubiquitinates polyubiquitinated target proteins such as MDM2, MDM4 and CCND1 (PubMed:17290220, PubMed:19838211,

	PubMed:19917254). Isoform 1 and isoform 4 possess both ubiquitin-specific peptidase and isopeptidase activities (By similarity). Deubiquitinates MDM2 without reversing MDM2-mediated p53/TP53 ubiquitination and thus indirectly promotes p53/TP53 degradation and limits p53 activity (PubMed:17290220, PubMed:19838211). Has no deubiquitinase activity against p53/TP53 (PubMed:17290220). Prevents MDM2-mediated degradation of MDM4 (PubMed:17290220). Plays a role in the G1/S cell-cycle progression in normal and cancer cells (PubMed:19917254). Regulates the circadian clock by modulating its intrinsic circadian rhythm and its capacity to respond to external cues (By similarity). Associates with clock proteins and deubiquitinates core clock component PER1 but does not affect its overall stability (By similarity). Regulates the nucleocytoplasmic shuttling and nuclear retention of PER1 and its repressive role on the clock transcription factors CLOCK and BMAL1 (By similarity). Plays a role in the regulation of myogenic differentiation of embryonic muscle cells (By similarity).
Cellular Location	Cytoplasm {ECO:0000250|UniProtKB:O88623}. Cytoplasm, perinuclear region {ECO:0000250|UniProtKB:O88623} Note=Localizes in the spermatid head in late-elongating spermatids in the thin area between the outer acrosomal membrane and the plasma membrane. {ECO:0000250|UniProtKB:Q5U349}
Tissue Location	Expressed in mesangial cells of the kidney and in different types of glomerulonephritides (at protein level)

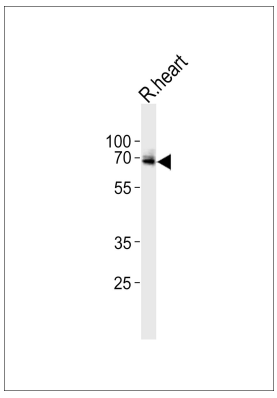
Background

Modification of target proteins by ubiquitin participates in a wide array of biological functions. Proteins destined for degradation or processing via the 26 S proteasome are coupled to multiple copies of ubiquitin. However, attachment of ubiquitin or ubiquitin-related molecules may also result in changes in subcellular distribution or modification of protein activity. An additional level of ubiquitin regulation, deubiquitination, is catalyzed by proteases called deubiquitinating enzymes, which fall into four distinct families. Ubiquitin C-terminal hydrolases, ubiquitin-specific processing proteases (USPs),1 OTU-domain ubiquitin-aldehyde-binding proteins, and Jab1/Pad1/MPN-domain-containing metallo-enzymes. Among these four families, USPs represent the most widespread and represented deubiquitinating enzymes across evolution. USPs tend to release ubiquitin from a conjugated protein. They display similar catalytic domains containing conserved Cys and His boxes but divergent N-terminal and occasionally C-terminal extensions, which are thought to function in substrate recognition, subcellular localization, and protein-protein interactions.

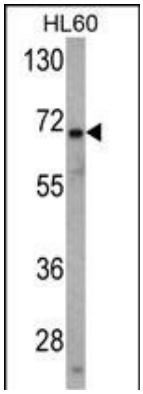
References

Strausberg, R.L., et al., Proc. Natl. Acad. Sci. U.S.A. 99(26):16899-16903 (2002).

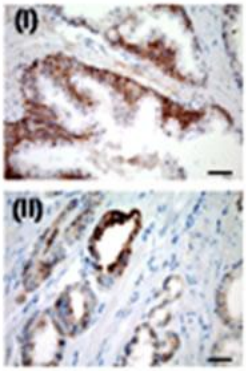
Images



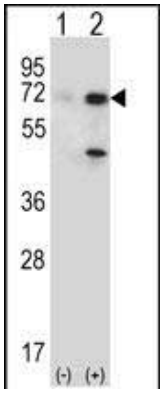
Western blot analysis of lysate from R. heart cell line, using USP2 Antibody (T22)(Cat. #AP2131a). AP2131a was diluted at 1:1000. A goat anti-rabbit IgG H&L(HRP) at 1:10000 dilution was used as the secondary antibody. Lysate at 20ug.



Western blot analysis of USP2 Antibody (N-term) (Cat. #AP2131a) in HL60 cell line lysates (35ug/lane). USP2 (arrow) was detected using the purified Pab.



IHC for USP2a in a formalin-fixed, paraffin-embedded human prostate sample. Cytoplasmic positive immunostaining was detected in tumor glands (ii), whereas in normal prostatic epithelium, USP2a expression was restricted to the basal layer.



Western blot analysis of USP2 (arrow) using rabbit polyclonal USP2 Antibody (T22) (Cat. #AP2131a). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected (Lane 2) with the USP2 gene.

Citations

- Ubiquitin-Specific Protease 2 Modulates the Lipopolysaccharide-Elicited Expression of Proinflammatory Cytokines in Macrophage-like HL-60 Cells.
- Ubiquitin-specific protease 2-69 in macrophages potentially modulates metainflammation.
- The deubiquitinating enzyme USP2a regulates the p53 pathway by targeting Mdm2.
- The isopeptidase USP2a protects human prostate cancer from apoptosis.