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# USP2 Antibody (C-term L523)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2131c

## Product Information

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| **Application** | IHC-P, WB, E |
| **Primary Accession** | O75604 |
| **Other Accession** | Q5U349, O88623, Q2KHV7 |
| **Reactivity** | Human, Rat, Mouse |
| **Predicted** | Mouse, Rat, Bovine, Canine, Rabbit |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Isotype** | Rabbit IgG |
| **Calculated MW** | 68072 |
| **Antigen Region** | 508-538 |

## Additional Information

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| **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 508-538 amino acids from the C-terminal region of human USP2. |
| **Dilution** | IHC-P~~1:100~500 WB~~1:1000 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 (C-term L523) is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

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| **Name** | USP2 |
| **Synonyms** | UBP41 |

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| **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) |

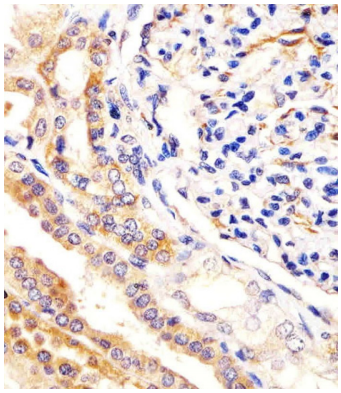
## Background

USP2, an ubiquitin-specific protease, is selectively up regulated in bone by the osteotropic agents PTH, PTHrP and PGE2 and possibly via the PKA/cAMP pathway. It is also thought to play a role in the recycling of ubiquitin by hydrolysis of branched poly-ubiquitin from linear poly-ubiquitin chains, production of free ubiquitin from linear poly-ubiquitin chains and from certain ribosomal ubiquitin fusion proteins.

## References

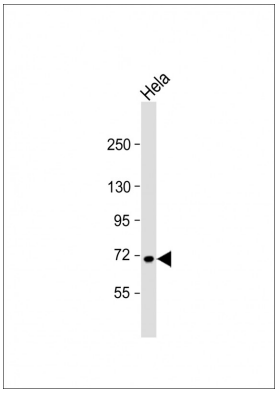
Strausberg, R.L., et al., Proc. Natl. Acad. Sci. U.S.A. 99(26):16899-16903 (2002).

## Images

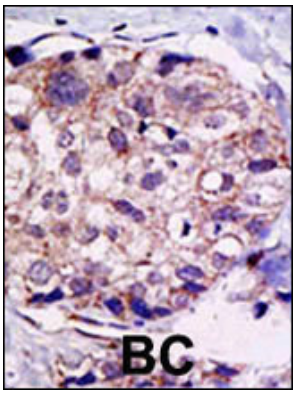


AP2131c staining USP2 in human kidney tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with formaldehyde and blocked with 3% BSA for 0. 5 hour at room temperature; antigen retrieval was by heat mediation with a citrate buffer (pH6). Samples were incubated with primary antibody (1/100) for 1 hours at 37°C. A undiluted biotinylated goat polyvalent antibody was used as the secondary antibody.

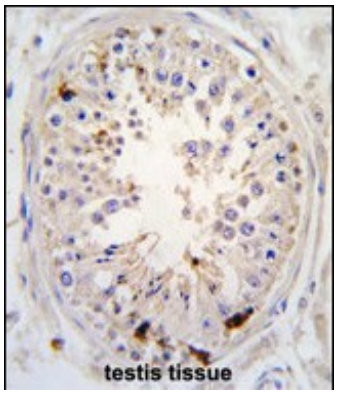
Anti-USP2 Antibody (L314) at 1:2000 dilution + Hela whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 68 kDa




Blocking/Dilution buffer: 5% NFDM/TBST.




Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.




Formalin-fixed and paraffin-embedded human testis tissue reacted with USP2 antibody (C-term L523), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.

## Citations


- Targeted destruction of VISTA boosts anti-tumor immunotherapy.
- Decreased USP2a Expression Inhibits Trophoblast Invasion and Associates With Recurrent Miscarriage
- Ubiquitin-specific protease 2a promotes hepatocellular carcinoma progression via deubiquitination and stabilization of RAB1A
- The deubiquitylase USP2 maintains ErbB2 abundance via counteracting endocytic degradation and represents a therapeutic target in ErbB2-positive breast cancer
- Inhibition of ubiquitin-specific protease 2 causes accumulation of reactive oxygen species, mitochondria dysfunction, and intracellular ATP decrement in C2C12 myoblasts.
- Mice lacking the USP2 deubiquitinating enzyme have severe male subfertility associated with defects in fertilization and sperm motility.
- Ubiquitin-specific protease 2-45 (Usp2-45) binds to epithelial Na+ channel (ENaC)-ubiquitylating enzyme Nedd4-2.
- MdmX is a substrate for the deubiquitinating enzyme USP2a.
- Suppression of cancer cell growth by promoting cyclin D1 degradation.
- Retraction for D. R. Zweitzig, N. Shcherbik, and D. S. Haines: AAA ATPase P97 and adaptor UBXD1 suppress MDM2 ubiquitination and degradation and promote constitutive P53 turnover.
- The deubiquitinating enzyme USP2a regulates the p53 pathway by targeting Mdm2.
- USP2a protein deubiquitinates and stabilizes the circadian protein CRY1 in response to inflammatory signals.
- Ubiquitin-specific protease 2b negatively regulates IFN-β production and antiviral activity by targeting TANK-binding kinase 1.
- Ubiquitin-Specific Protease 2 Modulates the Lipopolysaccharide-Elicited Expression of Proinflammatory Cytokines in Macrophage-like HL-60 Cells.

- Small Molecule Inhibition of the Ubiquitin-specific Protease USP2 Accelerates Cyclin D1 Degradation and Leads to Cell Cycle Arrest in Colorectal Cancer and Mantle Cell Lymphoma Models.
- Deubiquitinase USP2a Sustains Interferons Antiviral Activity by Restricting Ubiquitination of Activated STAT1 in the Nucleus.
- Overexpression of ubiquitin-specific protease 2a (USP2a) and nuclear factor erythroid 2-related factor 2 (Nrf2) in human gliomas.

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