

USP48 (5C2): sc-100635

BACKGROUND

The ubiquitin (Ub) pathway involves three sequential enzymatic steps that facilitate the conjugation of Ub and Ub-like molecules to specific protein substrates. Through the use of a wide range of enzymes that can add or remove ubiquitin, the Ub pathway controls many intracellular processes such as signal transduction, transcriptional activation and cell cycle progression. USP48 (ubiquitin specific peptidase 48), also known as USP31 or RAP1GA1 is a widely expressed 1,035 amino acid protein that belongs to the peptidase C19 family of proteins. Containing three DUSP domains and one ubiquitin-like domain, USP48 functions as a deubiquitinating enzyme that cleaves ubiquitin residues from both ubiquitinated proteins and ubiquitin-fused precursors, thereby saving these proteins from proteasomal degradation. By reversing the ubiquitination of proteins such as TRAF2 and TRAF6, USP48 plays an important role in the regulation of NF κ B activation. Seven isoforms of USP48 are expressed due to alternative splicing events.

REFERENCES

1. Wilkinson, K.D. 1997. Regulation of ubiquitin-dependent processes by deubiquitinating enzymes. *FASEB J.* 11: 1245-1256.
2. Puente, X.S., et al. 2003. Human and mouse proteases: a comparative genomic approach. *Nat. Rev. Genet.* 4: 544-558.
3. Lockhart, P.J., et al. 2004. Identification of the human ubiquitin specific protease 31 (USP31) gene: structure, sequence and expression analysis. *DNA Seq.* 15: 9-14.
4. Quesada, V., et al. 2004. Cloning and enzymatic analysis of 22 novel human ubiquitin-specific proteases. *Biochem. Biophys. Res. Commun.* 314: 54-62.
5. Hatano, Y., et al. 2004. PARK6-linked autosomal recessive early-onset parkinsonism in Asian populations. *Neurology* 63: 1482-1485.
6. Wullaert, A., et al. 2006. Ubiquitin: tool and target for intracellular NF κ B inhibitors. *Trends Immunol.* 27: 533-540.
7. Tzimas, C., et al. 2006. Human ubiquitin specific protease 31 is a deubiquitinating enzyme implicated in activation of nuclear factor- κ B. *Cell. Signal.* 18: 83-92.

CHROMOSOMAL LOCATION

Genetic locus: USP48 (human) mapping to 1p36.12.

SOURCE

USP48 (5C2) is a mouse monoclonal antibody raised against recombinant USP48 of human origin.

PRODUCT

Each vial contains 100 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

USP48 (5C2) is recommended for detection of USP48 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for USP48 siRNA (h): sc-76865, USP48 shRNA Plasmid (h): sc-76865-SH and USP48 shRNA (h) Lentiviral Particles: sc-76865-V.

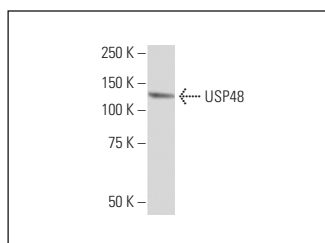
Molecular Weight of USP48: 119 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

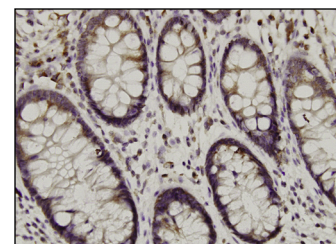
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



USP48 (5C2): sc-100635. Western blot analysis of USP48 expression in HeLa whole cell lysate.



USP48 (5C2): sc-100635. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human colon tissue showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Liu, Q., et al. 2018. Broad and diverse mechanisms used by deubiquitinase family members in regulating the type I interferon signaling pathway during antiviral responses. *Sci. Adv.* 4: ear2824.

RESEARCH USE

For research use only, not for use in diagnostic procedures.