

USP45 (MA44): sc-130478

BACKGROUND

The ubiquitin (Ub) pathway involves three sequential enzymatic steps that facilitate the conjugation of Ub and Ub-like molecules to specific protein substrates. A wide range of enzymes facilitate the proteolytic Ub pathway, including USPs (ubiquitin specific peptidases), which are cysteine proteases that are responsible for the release of ubiquitin from a ubiquitylated substrate, and precursor fusion proteins. USP45 (ubiquitin carboxyl-terminal hydrolase 45), also known as deubiquitinating enzyme 45, is a 819 amino acid protein that is involved in ubiquitin-dependent protein catabolism. USP45 differs from other USPs in that it contains a UBP-type zinc finger, a domain which binds ubiquitin. Although USP45 is broadly expressed, the highest levels can be found in skeletal muscle, spleen and ovary. There are three isoforms of USP45 which are produced as a result of alternative splicing.

REFERENCES

1. Puente, X.S., Sánchez, L.M., Overall, C.M. and López-Otín, C. 2003. Human and mouse proteases: a comparative genomic approach. *Nat. Rev. Genet.* 4: 544-558.
2. Quesada, V., Díaz-Perales, A., Gutiérrez-Fernández, A., Garabaya, C., Cal, S. and López-Otín, C. 2004. Cloning and enzymatic analysis of 22 novel human ubiquitin-specific proteases. *Biochem. Biophys. Res. Commun.* 314: 54-62.
3. Hicke, L., Schubert, H.L. and Hill, C.P. 2005. Ubiquitin-binding domains. *Nat. Rev. Mol. Cell Biol.* 6: 610-621.
4. Stegmeier, F., Rape, M., Draviam, V.M., Nalepa, G., Sowa, M.E., Ang, X.L., McDonald, E.R., Li, M.Z., Hannon, G.J., Sorger, P.K., Kirschner, M.W., Harper, J.W. and Elledge, S.J. 2007. Anaphase initiation is regulated by antagonistic ubiquitination and deubiquitination activities. *Nature* 446: 876-881.
5. Allen, M.D. and Bycroft, M. 2007. The solution structure of the ZnF UBP domain of USP33/VDU1. *Protein Sci.* 16: 2072-2075.
6. Ha, B.H. and Kim, E.E. 2008. Structures of proteases for ubiquitin and ubiquitin-like modifiers. *BMB Rep.* 41: 435-443.
7. Ventii, K.H. and Wilkinson, K.D. 2008. Protein partners of deubiquitinating enzymes. *Biochem. J.* 414: 161-175.

CHROMOSOMAL LOCATION

Genetic locus: USP45 (human) mapping to 6q16.2; Usp45 (mouse) mapping to 4 A3.

SOURCE

USP45 (MA44) is a mouse monoclonal antibody raised against recombinant USP45 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

USP45 (MA44) is recommended for detection of USP45 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for USP45 siRNA (h): sc-76859, USP45 siRNA (m): sc-76860, USP45 shRNA Plasmid (h): sc-76859-SH, USP45 shRNA Plasmid (m): sc-76860-SH, USP45 shRNA (h) Lentiviral Particles: sc-76859-V and USP45 shRNA (m) Lentiviral Particles: sc-76860-V.

Molecular Weight of USP45: 92 kDa.

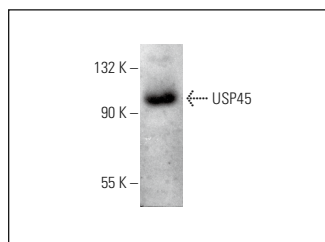
Positive Controls: human skeletal muscle extract: sc-363776.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:

- 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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).

DATA



USP45 (MA44): sc-130478. Western blot analysis of USP45 expression in human skeletal muscle tissue extract.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.