

# USP45 (E-15): sc-82763

## 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 (E-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of USP45 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-82763 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

USP45 (E-15) 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), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with isoform USP45-3.

USP45 (E-15) is also recommended for detection of USP45 in additional species, including equine, canine, bovine and porcine.

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.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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](http://www.scbt.com) or our catalog for detailed protocols and support products.