SANTA CRUZ BIOTECHNOLOGY, INC.

USP1 (H-300) : sc-135222

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. USP1 (ubiquitin specific peptidase 1), also known as UBP, ubiquitin carboxyl-terminal hydrolase 1, ubiquitin thioesterase 1 or deubiquitinating enzyme 1, is a 785 amino acid that belongs to the peptidase C19 family of ubiquitin carboxy-terminal hydrolases. A negative regulator of DNA damage repair, USP1 specifically deubiquitinates FANCD2 in the DNA repair pathway. Following DNA damage, autocatalytic cleavage of USP1 leads to an increase in ubiquitinated PCNA and the recruitment of POL H. Multiple isoforms of USP1 exist due to alternative splicing events.

REFERENCES

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2. Nijman, S.M., et al. 2005. The deubiquitinating enzyme USP1 regulates the Fanconi anemia pathway. Mol. Cell 17: 331-339.
3. Friedberg, E.C. 2006. Reversible monoubiquitination of PCNA: a novel slant on regulating translesion DNA synthesis. Mol. Cell 22: 150-152.
4. Zhang, Y., et al. 2007. Fanconi anemia and ubiquitination. J. Genet. Genomics 34: 573-580.
5. Cohn, M.A., et al. 2007. A UAF1-containing multisubunit protein complex regulates the Fanconi anemia pathway. Mol. Cell 28: 786-797.
6. Oestergaard, V.H., et al. 2007. Deubiquitination of FANCD2 is required for DNA crosslink repair. Mol. Cell 28: 798-809.
7. Brown, S., et al. 2009. Ubiquitination and deubiquitination of PCNA in response to stalling of the replication fork. Cell Cycle 8: 689-692.
8. Kim, J.M., et al. 2009. Inactivation of murine Usp1 results in genomic instability and a Fanconi anemia phenotype. Dev. Cell 16: 314-320.
9. Cohn, M.A., et al. 2009. UAF1 is a subunit of multiple deubiquitinating enzyme complexes. J. Biol. Chem. 284: 5343-5351.

CHROMOSOMAL LOCATION

Genetic locus: USP1 (human) mapping to 1p31.3; Usp1 (mouse) mapping to 4 C6.

SOURCE

USP1 (H-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping at the N-terminus of USP1 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.

APPLICATIONS

USP1 (H-300) is recommended for detection of USP1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

USP1 (H-300) is also recommended for detection of USP1 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for USP1 siRNA (h): sc-88494, USP1 siRNA (m): sc-106677, USP1 shRNA Plasmid (h): sc-88494-SH, USP1 shRNA Plasmid (m): sc-106677-SH, USP1 shRNA (h) Lentiviral Particles: sc-88494-V and USP1 shRNA (m) Lentiviral Particles: sc-106677-V.

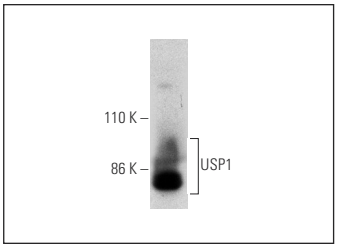
Molecular Weight of USP1: 90 kDa.

Positive Controls: mouse brain extract: sc-2253.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



USP1 (H-300): sc-135222. Western blot analysis of USP1 expression in mouse brain 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.