SANTA CRUZ BIOTECHNOLOGY, INC.

SENP1 (Y-20): sc-46634

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The Power to Question

BACKGROUND

SUMO (small ubiquitin-related modifier), a member of the ubiquitin-like protein family, regulates diverse cellular functions of a variety of target proteins, including transcription, DNA repair, nucleocytoplasmic trafficking and chromosome segregation. SUMO precursor proteins undergo cleavage of the residues after the "GG" region by SUMO-specific proteases in maturation. This cleavage of the precursor is a prerequisite for subsequent sumoylation. The sentrin-specific (or SUMO-specific) protease (SENP) proteins belong to the peptidase C48 family and include SENP1-3 and SENP5-8. SENP1, SENP2 and SENP3 degrade UBL1 and SMT3H2 conjugates and subsequently release the monomers from sumoylated substrates. HIPK2 is a desumoylation target for SENP1 which shuttles between the cytoplasm and the nucleus. Mutation analyses reveal that SENP1 contains the nuclear export sequence (NES) within the extreme carboxyl-terminal region, and SENP1 is exported to the cytoplasm in a NES-dependent manner. SENP2 has been implicated as a downregulator of CTNNB1 levels and may therefore be a modulator of the Wnt pathway. SUMO protease SENP3 reverses the sumoylation of MEF2 to augment its transcriptional and myogenic activities. SENP5 localizes to the nucleolus and preferentially processes SUMO-3. It is thought to play a role in mitosis and/or cytokinesis. SENP6 localizes to the cytoplasm and releases SUMO-1. Expression of SENP6 is higher in reproductive organs, indicating that it may mediate processes related to reproduction. SENP8 is involved in the release of sentrins.

REFERENCES

1. Gong, L., et al. 2000. Differential regulation of sentrinized proteins by a novel sentrin-specific protease. J. Biol. Chem. 275: 3355-3359.
2. Kim, K.I., et al. 2000. A new SUMO-1-specific protease, SUSP1, that is highly expressed in reproductive organs. J. Biol. Chem. 275: 14102-14106.
3. Cheng, J., et al. 2004. SENP1 enhances androgen receptor-dependent transcription through desumoylation of histone deacetylase 1. Mol. Cell. Biol. 24: 6021-6028.

CHROMOSOMAL LOCATION

Genetic locus: SENP1 (human) mapping to 12q13.11; Senp1 (mouse) mapping to 15 F1.

SOURCE

SENP1 (Y-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of SENP1 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-46634 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

SENP1 (Y-20) is recommended for detection of SENP1 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).

SENP1 (Y-20) is also recommended for detection of SENP1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for SENP1 siRNA (h): sc-44449, SENP1 siRNA (m): sc-45715, SENP1 shRNA Plasmid (h): sc-44449-SH, SENP1 shRNA Plasmid (m): sc-45715-SH, SENP1 shRNA (h) Lentiviral Particles: sc-44449-V and SENP1 shRNA (m) Lentiviral Particles: sc-45715-V.

Molecular Weight of SENP1: 73 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203 or HEK293 whole cell lysate: sc-45136.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

SELECT PRODUCT CITATIONS

1. Feliciangeli, S., et al. 2007. Does sumoylation control K2P1/TWIK1 background K^+ channels? Cell 130: 563-569.
2. Huang, W., et al. 2012. Triptolide inhibits the proliferation of prostate cancer cells and down-regulates SUMO-specific protease 1 expression. PLoS ONE 7: e37693.
3. Ishihara, K., et al. 2012. Lens epithelium-derived growth factor deSumoylation by Sumo-specific protease-1 regulates its transcriptional activation of small heat shock protein and the cellular response. FEBS J. 279: 3048-3070.

RESEARCH USE

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