

# SUMO-1 (S-18): sc-31852

## BACKGROUND

The small ubiquitin-related modifier (SUMO) proteins, which include SUMO-1, SUMO-2 and SUMO-3, belong to the ubiquitin-like protein family. Like ubiquitin, the SUMO proteins are synthesized as precursor proteins that undergo processing before conjugation to target proteins. Also, both utilize the E1, E2, and E3 cascade enzymes for conjugation. However, SUMO and ubiquitin differ with respect to targeting. Ubiquitination predominantly targets proteins for degradation, whereas sumoylation targets proteins to a variety of cellular processing, including nuclear transport, transcriptional regulation, apoptosis and protein stability. The unconjugated SUMO-1, SUMO-2 and SUMO-3 proteins localize to the nuclear membrane, nuclear bodies and cytoplasm, respectively. SUMO-1 utilizes Ubc9 for conjugation to several target proteins, which include I $\kappa$ B $\alpha$ , MDM2, p53, PML and Ran GAP1. SUMO-2 and SUMO-3 contribute to a greater percentage of protein modification than does SUMO-1, and unlike SUMO-1, they can form polymeric chains. In addition, SUMO-3 regulates  $\beta$ -Amyloid generation and may be critical in the onset or progression of Alzheimer's disease.

## REFERENCES

1. Duprez, E., et al. 1999. SUMO-1 modification of the acute promyelocytic leukaemia protein PML: implications for nuclear localisation. *J. Cell Sci.* 112: 381-393.
2. Saitoh, H., et al. 2000. Functional heterogeneity of small ubiquitin-related protein modifiers SUMO-1 versus SUMO-2/3. *J. Biol. Chem.* 275: 6252-6258.
3. Tatham, M.H., et al. 2001. Polymeric chains of SUMO-2 and SUMO-3 are conjugated to protein substrates by SAE1/SAE2 and Ubc9. *J. Biol. Chem.* 276: 35368-35374.
4. Hayashi, T., et al. 2002. Ubc9 is essential for viability of higher eukaryotic cells. *Exp. Cell Res.* 280: 212-221.
5. Kim, K.I., et al. 2002. Versatile protein tag, SUMO: its enzymology and biological function. *J. Cell. Physiol.* 191: 257-268.
6. Su, H., et al. 2002. Molecular features of human ubiquitin-like SUMO genes and their encoded proteins. *Gene* 296: 65.
6. Spengler, M.L., et al. 2002. SUMO-1 modification of human cytomegalovirus IE1/IE72. *J. Virol.* 76: 2990-2996.

## CHROMOSOMAL LOCATION

Genetic locus: SUMO1 (human) mapping to 2q33.1; Sumo1 (mouse) mapping to 1 C1.3.

## SOURCE

SUMO-1 (S-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of SUMO-1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-31851 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

SUMO-1 (S-18) is recommended for detection of SUMO-1 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).

SUMO-1 (S-18) is also recommended for detection of SUMO-1 in additional species, including canine.

Suitable for use as control antibody for SUMO-1 siRNA (h): sc-29498, SUMO-1 siRNA (m): sc-36574, SUMO-1 siRNA (r): sc-156144, SUMO-1 shRNA Plasmid (h): sc-29498-SH, SUMO-1 shRNA Plasmid (m): sc-36574-SH, SUMO-1 shRNA Plasmid (r): sc-156144-SH, SUMO-1 shRNA (h) Lentiviral Particles: sc-29498-V, SUMO-1 shRNA (m) Lentiviral Particles: sc-36574-V and SUMO-1 shRNA (r) Lentiviral Particles: sc-156144-V.

Molecular Weight of SUMO-1 monomer: 11.5 kDa.

Molecular Weight of SUMO-1 heterodimer: 90 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, HeLa whole cell lysate: sc-2200 or KNRK whole cell lysate: sc-2214.

## 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<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> 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<sup>™</sup> 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.



Try **SUMO-1 (D-11): sc-5308** or **SUMO-1 (66AT1273.94): sc-130275**, our highly recommended monoclonal alternatives to SUMO-1 (S-18). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **SUMO-1 (D-11): sc-5308**.