

# SUMO-1 (66AT1273.94): sc-130275

## 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

- 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.
- 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.
- 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.
- Kim, K.I., et al. 2002. Versatile protein tag, SUMO: its enzymology and biological function. *J. Cell. Physiol.* 191: 257-268.
- Su, H., et al. 2002. Molecular features of human ubiquitin-like SUMO genes and their encoded proteins. *Gene* 296: 65.
- 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 (66AT1273.94) is a mouse monoclonal antibody raised against purified recombinant SUMO-1 of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>1</sub> in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

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

## APPLICATIONS

SUMO-1 (66AT1273.94) 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), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

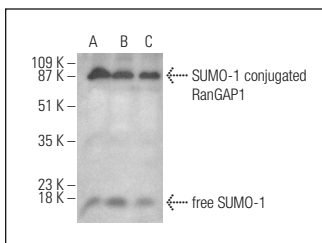
Suitable for use as control antibody for SUMO-1 siRNA (h): sc-29498, SUMO-1 siRNA (m): sc-36574, SUMO-1 shRNA Plasmid (h): sc-29498-SH, SUMO-1 shRNA Plasmid (m): sc-36574-SH, SUMO-1 shRNA (h) Lentiviral Particles: sc-29498-V and SUMO-1 shRNA (m) Lentiviral Particles: sc-36574-V.

Molecular Weight of SUMO-1 monomer: 12 kDa.

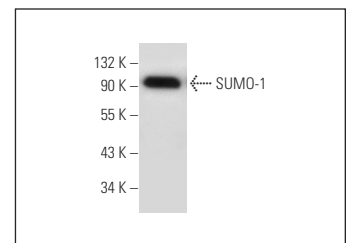
Molecular Weight of SUMO-1 heterodimer: 90 kDa.

Positive Controls: Neuro-2A whole cell lysate: sc-364185, HeLa whole cell lysate: sc-2200 or A549 cell lysate: sc-2413.

## DATA



SUMO-1 (66AT1273.94): sc-130275. Western blot analysis of SUMO-1 expression in Neuro-2A (A), A549 (B) and ZR-75-1 (C) whole cell lysates.



SUMO-1 (66AT1273.94): sc-130275. Western blot analysis of SUMO-1 expression in HeLa whole cell lysate.

## SELECT PRODUCT CITATIONS

- Li, G., et al. 2017. Hypothermia exerts early neuroprotective effects involving protein conjugation of SUMO-2/3 in a rat model of middle cerebral artery occlusion. *Mol. Med. Rep.* 16: 3217-3223.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.



See **SUMO-1 (D-11): sc-5308** for SUMO-1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.