SANTA CRUZ BIOTECHNOLOGY, INC.

SUMO-1 (h3): 293T Lysate: sc-159116

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 IκBα, 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 β-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. Kim, K.I., et al. 2002. Versatile protein tag, SUMO: its enzymology and biological function. J. Cell. Physiol. 191: 257-268.
5. 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.
7. Hayashi, T., et al. 2002. UBC9 is essential for viability of higher eukaryotic cells. Exp. Cell Res. 280: 212-221.
8. Maeda, A., et al. 2003. The intracellular association of the nucleocapsid protein (NP) of hantaan virus (HTNV) with small ubiquitin-like modifier-1 (SUMO-1) conjugating enzyme 9 (UBC9). Virology 305: 288-297.
9. Li, Y., et al. 2003. Positive and negative regulation of APP amyloidogenesis by sumoylation. Proc. Natl. Acad. Sci. USA 100: 259-264.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CHROMOSOMAL LOCATION

Genetic locus: SUMO1 (human) mapping to 2q33.1.

PRODUCT

SUMO-1 (h3): 293T Lysate represents a lysate of human SUMO-1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

SUMO-1 (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive SUMO-1 antibodies. Recommended use: 10-20 µl per lane.

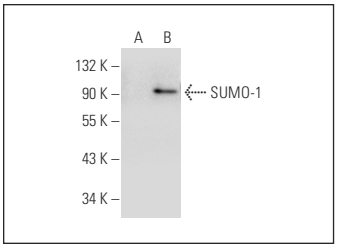
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

SUMO-1 (D-11): sc-5308 is recommended as a positive control antibody for Western Blot analysis of enhanced human SUMO-1 expression in SUMO-1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



SUMO-1 (D-11): sc-5308. Western blot analysis of SUMO-1 expression in non-transfected: sc-117752 (**A**) and human SUMO-1 transfected: sc-159116 (**B**) 293T whole cell lysates.

RESEARCH USE

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