SANTA CRUZ BIOTECHNOLOGY, INC.

SUMO-1 (D-11): sc-5308

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 IκB-α, 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.

CHROMOSOMAL LOCATION

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

SOURCE

SUMO-1 (D-11) is a mouse monoclonal antibody raised against amino acids 1-101 of SUMO-1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SUMO-1 (D-11) is available conjugated to agarose (sc-5308 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-5308 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; and to either phycoerythrin (sc-5308 PE), fluorescein (sc-5308 FITC) or Alexa Fluor® 488 (sc-5308 AF488) or Alexa Fluor® 647 (sc-5308 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

STORAGE

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

APPLICATIONS

SUMO-1 (D-11) 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 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 (D-11) is also recommended for detection of SUMO-1 in additional species, including bovine and porcine.

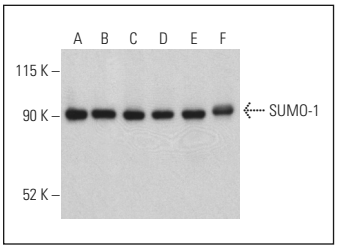
Suitable for use as control antibody for SUMO-1 siRNA (h): sc-29498, SUMO-1 siRNA (m): sc-36574, SUMO-1 siRNA (r): sc-156144, SUMO-1 shRNA Plasmid (h): sc-29498-SH, SUMO-1 shRNA Plasmid (m): sc-36574-SH, SUMO-1 shRNA Plasmid (r): sc-156144-SH, SUMO-1 shRNA (h) Lentiviral Particles: sc-29498-V, SUMO-1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

Molecular Weight of SUMO-1 monomer: 12 kDa.

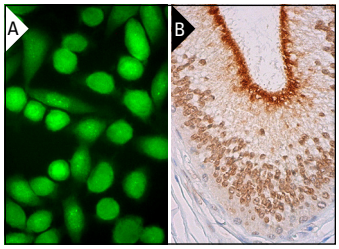
Molecular Weight of SUMO-1 heterodimer: 90 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, NIH/3T3 whole cell lysate: sc-2210 or HeLa whole cell lysate: sc-2200.

DATA



SUMO-1 (D-11): sc-5308. Western blot analysis of SUMO-1 expression in HeLa (**A**), A-431 (**B**), Jurkat (**C**), MDA-MB-231 (**D**), HL-60 (**E**) and NIH/3T3 (**F**) whole cell lysates. Detection reagent used: m-IgG_3 BP-HRP: sc-533670.



SUMO-1 (D-11) Alexa Fluor® 488: sc-5308 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing nuclear and cytoplasmic localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). SUMO-1 (D-11): sc-5308. Immunoperoxidase staining of formalin fixed, paraffin-embedded human epididymis tissue showing nuclear and apical membrane staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Fang, W., et al. 2002. Regulation of PML-dependent transcriptional repression by pRB and low penetrance pRB mutants. Oncogene 21: 5557-5565.
2. Duman, M., et al. 2020. EEF1A1 deacetylation enables transcriptional activation of remyelination. Nat. Commun. 11: 3420.
3. Karle, W., et al. 2021. Promyelocytic leukemia protein (PML) promotes the phenotypic switch of smooth muscle cells in atherosclerotic plaques of human coronary arteries. Clin. Sci. 135: 887-905.

RESEARCH USE

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