

Anti-SUMO-1 antibody, rat monoclonal (4D12), Biotin-conjugated

70-654 50 μ g

SUMO (Small Ubiquitin-like **Modifier**) proteins are a family of small proteins that are covalently attached to and detached from other proteins in cells to modify their function. Unlike ubiquitination, which targets proteins for degradation, **SUMO** modification plays a critical role in a number of cellular functions including nucleocytoplasmic transport, gene expression, cell cycle and formation of subnuclear structures such as promyelocytic leukemia (PML) bodies. There are three confirmed **SUMO** isoforms in human; **SUMO1**, SUMO2 and SUMO3. SUMO2 /3 show a high degree of similarity to each other and are distinct from **SUMO1**. Individual **SUMO** family members are all targeted to different proteins with diverse biological functions. **SUMO-1** is conjugated to RanGAP, PML, p53 and I κ B- α to regulate nuclear trafficking, formation of subnuclear structures, regulation of transcriptional activity and protein stability. SUMO1 is encoded as a 101 aa protein and first Met and C-terminal 4 aa are removed from the preprotein.

Applications:

1. Western blotting (1/1,000 dilution)
2. Immunofluorescence staining (1/100 dilution)
3. Immunohistochemistry, frozen section (1/100 dilution)
4. ELISA (assay dependent) Other applications have not been tested.

Immunogen: Recombinant GST-fused human SUMO1 (full length)

Isotype: Rat IgG 2a kappa

Product: The antibody was produced in serum-free medium and purified by proprietary chromatography procedures under mild conditions and conjugated with biotin..

Form: 1mg/ml in PBS, 50% glycerol, filter-sterilized. Azide- and carrier protein-free.

Specificity: Specific to human, simian, mouse and rat SUMO1. Other species have not been tested.

Storage: Shipped at 4°C or -20°C and store at -20°C

Data Link: Swiss-Prot [P63165](#) (human)

References: This antibody was used in Ref. 3 and 4.

1. Ulrich HD "The fast-growing business of SUMO chains." Review *Mol Cell* **32**: 301–305 (2008) PMID: [18995828](#)
2. Cheng J *et al* "Role of desumoylation in the development of prostate cancer." Review *Neoplasia* **8**: 667-676 (2006) PMID: [16925949](#)
3. Uchimura Y *et al* "Involvement of SUMO modification in MBD1- and MCAF1-mediated heterochromatin formation." *J Biol Chem* **281**: 23180-23190 (2006) PMID: [16757475](#)

4. Saitoh N *et al* "In situ SUMOylation analysis reveals a modulatory role of RanBP2 in the nuclear rim and PML bodies." *Exp Cell Res* **312**: 1418-1430 (2006) PMID: [16688858](https://pubmed.ncbi.nlm.nih.gov/16688858/)

Fig.1. Detection of SUMO-1 by Western blotting with the antibody 4D12.

An 80kDa single and other multiple bands were observed in HeLa total cell extract.

The 80 kDa band would be SUMO-RanGAP.

Anti-SUMO-1 antibody 4D12 was used at 1 μ g/ml.

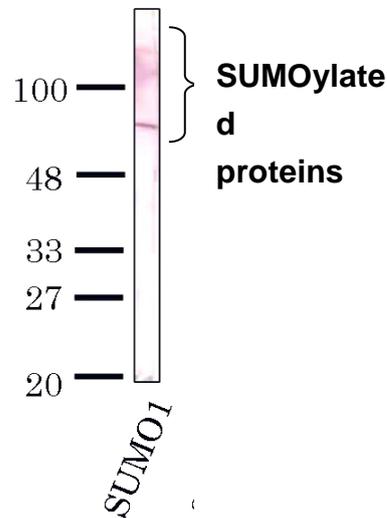


Fig.2. Immunofluorescence staining of SUMO-1 with the antibody 4D12 in the mouse primary culture neurons.

Left: Stained with anti-SUMO-1 antibody 4D12 at 10 μ g/ml.

Right: DNA was stained with Hoechst

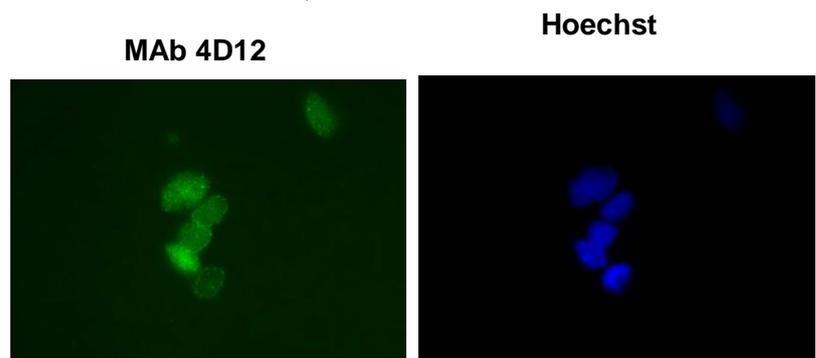


Fig.3. SUMO1 colocalizes with SUMO-2/3 as revealed by indirect immunofluorescence staining of C-33A cells (human cervix carcinoma).

Left: SUMO-1 was stained with anti-SUMO1 antibody (4D12) at 10 μ g/ml.

Middle: SUMO2/3 was stained with anti-SUMO2/3 antibody (3H12) at 10 μ g/ml.

Right: Merged image

