

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

70-655                      50 µg

**Shipping and Storage:** Ship at 4°C and store at -20°C. Do not freeze

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

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

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

**Isotype:** Rat IgG 2a κ

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

### Applications:

1. Immunofluorescence staining (1/100 dilution)
2. Immunohistochemistry, frozen section (1/100 dilution)

**Background:** **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 **SUMO-1**. Individual **SUMO** family members are all targeted to different proteins with diverse biological functions. **SUMO-1** is conjugated to RanGAP, PML, p53 and IκB-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.

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

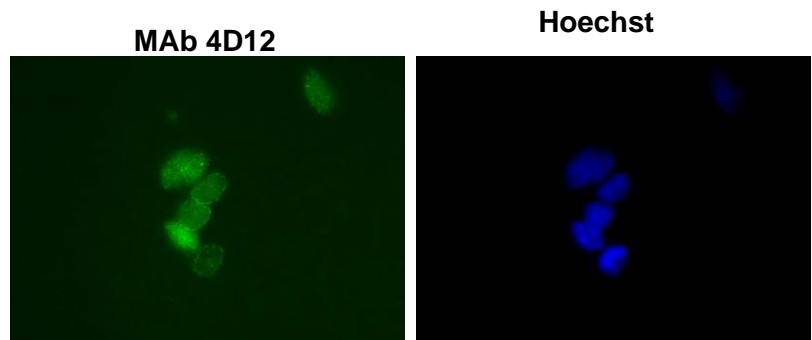
**References:** This antibody was used in Ref. 3 and 4.

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](#)

**Fig.1. 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  $\mu$ g/ml.

Right: DNA was stained with Hoechst



**Fig.2. SUMO-1 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-SUMO-1 antibody (4D12) at 10  $\mu$ g/ml

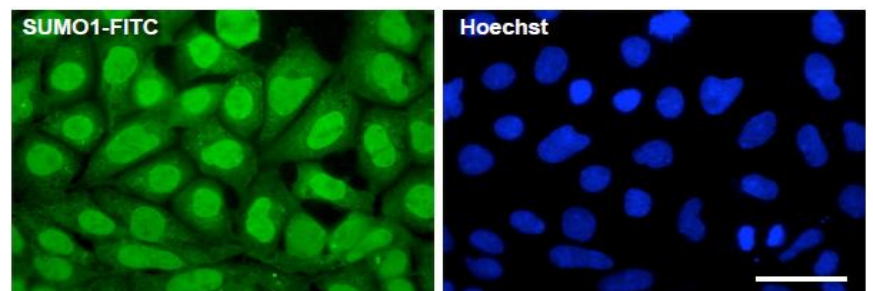
Middle: SUMO-2/3 was stained with anti-SUMO-2/3 antibody (3H12).

Right: Merged image



**Fig.3 Fluorescence immunocytochemistry for endogenous SUMO1 expression.**

HEK293A cells were fixed, permeabilized, and stained with SUMO1-FITC (1: 50) antibody and Hoechst 33342. Scale bar, 50  $\mu$ m.



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