SUMO-2 [untagged]

Modifying Protein

Alternate Names: HSMT3, MGC117191, Sentrin 2, Small ubiquitin like modifier 2, SMT3 homolog 2, SMT3B, SMT3H2

Cat. No.	**60-0007-500**	Quantity:	500 µg
Lot. No.	**1855**	Storage:	-70˚C

FOR RESEARCH USE ONLY NOT FOR USE IN HUMANS

Background

Small Ubiquitin-like Modifiers (SUMOs) are a family of small, related proteins that can be enzymatically conjugated to a target protein by a post-translational modification process termed SUMOylation. SUMO-2 is a highly conserved, small ubiquitin-related modifier that has been shown to be covalently conjugated to a large variety of cellular proteins (Dai and Liew, 2001; Kamitani *et al.*, 1997; Su and Li, 2002). Identification and cloning of human SUMO-2 was first described by Kamitani *et al.* (1997). Mouse and human SUMO-2 proteins are identical, with human SUMO-2 sharing 44% and 86% amino acid identity with SUMO-1 and SUMO-3, respectively (Su and Li, 2002). SUMO-2 has been shown to interact with the E3 ligase RNF28 through its RING domain (Dai and Liew, 2001). SUMO-2 is conjugated to a target protein in a similar way to ubiquitin and has been implicated in multiple cellular processes, including nuclear transport, cell cycle control, oncogenesis, inflammation and response to viral infection. SUMO-2 forms a number of conjugates similar to those of SUMO-1, first requiring cleavage of its C terminus for conjugation to occur (Kamitani *et al.*, 1997). RANGAP1 is modified by either SUMO-2 or SUMO-1, and formation of the sentrinized (SUMOylated) RANGAP1 requires covalent linkage between itself and SUMO-2 or SUMO-1 (Kamitani *et al.*, 1997). SUMO-2 has been localised predominantly to nuclear bodies, distinct from SUMO-1 and SUMO-3 which are found localised to the nuclear membrane (Matunis *et al.*, 1996).

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Physical Characteristics

Species: human

Source: *E. coli* expression

Quantity: 500 µg

Concentration: 1 mg/ml

Formulation: 50 mM HEPES pH 7.5, 150 mM sodium chloride, 2 mM dithiothreitol, 10% glycerol

Molecular Weight: ~10.6 kDa

Purity: >95% by InstantBlue™ SDS-PAGE

Stability/Storage: 12 months at -70˚C; aliquot as required

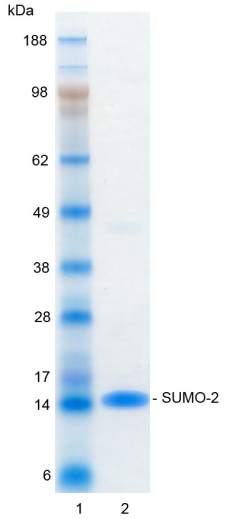
Protein Sequence:

GPGS***M***ADEKPKEGVKTENNDHINLKVAGQDGS
VVQFKIKRHTPLSKLMKAYCERQGLSMRQIR
FRFDGQPINETDTPAQLEMEDEDTIDVFQQQTGG

The residues underlined remain after cleavage and removal of the purification tag.
SUMO-2 (regular text): Start ***bold italics*** (amino acid residues 1-93)
Accession number: NP_008868

Quality Assurance

Purity:
4-12% gradient SDS-PAGE
InstantBlue™ staining
Lane 1: MW markers
Lane 2: 1 µg SUMO-2



Protein Identification:
Confirmed by mass spectrometry.

E2 Thioester SUMO-2 Loading Assay:
The activity of SUMO-2 was validated by loading SUMO-2 onto the active cysteine of the UBE2I E2 enzyme via a transthiolation reaction. Incubation of SUMO-2, SAE1/SAE2 and UBE2I enzymes in the presence of ATP at 30˚C was compared at two time points, T_0 and T_{10} minutes. Sensitivity of the SUMO-2/UBE2I thioester bond to the reducing agent DTT was confirmed.

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Lot-specific COA version tracker: v1.0.0

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Background

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References:

Dai KS, Liew CC (2001) A novel human striated muscle RING zinc finger protein, SMRZ, interacts with SMT3b via its RING domain. *J Biol Chem* **276**, 23992-9.

Kamitani T, Kito K, Nguyen HP, Yeh ET (1997) Characterization of NEDD8, a developmentally down-regulated ubiquitin-like protein. *J Biol Chem* **272**, 28557-62.

Matunis MJ, Coutavas E, Blobel G (1996) A novel ubiquitin-like modification modulates the partitioning of the Ran-GTPase-activating protein RanGAP1 between the cytosol and the nuclear pore complex. *J Cell Biol* **135**, 1457-70.

Su HL, Li SS (2002) Molecular features of human ubiquitin-like SUMO genes and their encoded proteins. *Gene* **296**, 65-73.

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