SUMO-1 (human), (recombinant) (His-tag)

SUMO (small ubiquitin-related modifier) is a member of a family of ubiquitin-like proteins involved in the regulation of the cellular functions of a wide variety of proteins. Four members of the SUMO family have been described in vertebrates, SUMO-1 and the close homologues SUMO-2 and SUMO-3, with some 50% homology between SUMO-1 and SUMO-2/3. Although a fourth SUMO (SUMO-4) has been reported, there remains considerable debate as to whether this is a real and expressed gene product.

The mechanism for SUMO conjugation is analogous to that of the ubiquitin system, relying upon utilisation of E1, E2 and (potentially) E3 cascade enzymes to covalently link the carboxy-terminal of SUMO proteins to specific lysine residues on target proteins *via* isopeptide bonds. Unlike ubiquitinylation, which leads, *inter alia*, to a degradative pathway, SUMO modification of target proteins is involved in nuclear protein targeting, formation of sub-nuclear complexes, regulation of transcriptional activities, and control of protein stability. A short sequence containing the consensus Ψ-K-X-D/E (where lysine is the modified amino acid, Ψ is a large hydrophobic residue and X is any amino acid residue) is thought to be necessary for protein SUMOylation to occur, however, SUMOylation has also been observed in cases where the consensus site is not conserved.

Conjugation of mature SUMO proteins to specific lysine residues on target proteins via isopeptide bonds, is involved in a range of processes including nuclear protein targeting, formation of sub-nuclear complexes, regulation of transcriptional activities, and control of protein stability.

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Ordering Information

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BML-UW9195-0500	500µg

Manuals, SDS & CofA

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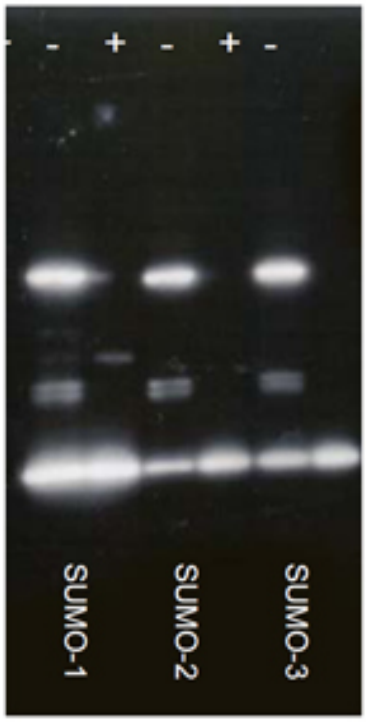

SUMOylation assays for RANGAP1 target protein using SUMO-1, 2 and 3. SUMOylated proteins were detected by Western blotting using the appropriate BIOMOL SUMO antibodies. Results demonstrate the formation of SUMOylated target proteins of the expected size in all ATP containing reactions (+). The absence of such conjugates in negative control reactions (–) demonstrates that their formation is ATP dependent (required for E1 activation) and hence derived from the SUMO cascade.

SDS-PAGE Analysis of SUMO-1 protein. Lane 1: MW markers (top to bottom) 66, 45, 36, 29, 24, 20 and 16. Lane 2: 10µg SUMO-1. Protein runs at ~20kDa.

Handling & Storage

Handling	Avoid freeze/thaw cycles. After opening, prepare aliquots and store at -80°C.
Long Term Storage	-80°C
Shipping	Dry Ice

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	Sentrin-1, Small ubiquitin-related modifier 1
Application Notes	In the presence of HeLa Fraction II or a combination of SUMO E1 and E2 (Prod. No. BML-UW9330 and BML-UW9320 respectively), with ATP, Mg^{2+}, and DTT, mature SUMO-1 may be conjugated to soluble proteins. Typical *in vitro* concentration for non-rate limiting conjugate formation is 200µM to 1mM, depending upon conditions. **Uses:** 1. SUMO-1 modification of specific proteins in vitro. 2. Demonstrate novel proteins are potential targets for SUMOylation under in vitro conditions. 3. Generate substrates for deSUMOylating enzymes.
Formulation	Liquid. In HEPES, pH 8.0, containing 50mM NaCl, 1mM DTT.
MW	~12kDa
Purity	≥95% (SDS-PAGE)
Source	Produced in *E. coli*. Human SUMO-1 is fused to a His-tag.
UniProt ID	P63165

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