
MATERIAL DATA SHEET

Recombinant Human His6-Pro SUMO2

Cat. # UL-751

Human Small Ubiquitin-like Modifier 2 (SUMO2), also known as Sentrin2 and SMT3B is synthesized as a 95 amino acid (aa), propeptide with a predicted 11 kDa. SUMO2 contains a two aa C-terminal prosegment and an 18 aa N-terminal protein interacting region between aa 33-50. Human SUMO2 shares 100% aa sequence identity with mouse SUMO2. SUMO2 also has very high aa sequence identity with SUMO3 and SUMO4, 86% and 85%, respectively. SUMO2 shares only 44% aa sequence identity with SUMO1. SUMOs are a family of small, related proteins that can be enzymatically attached to a target protein by a post-translational modification process termed SUMOylation (1-3). All SUMO proteins share a conserved Ubiquitin domain and a C-terminal diglycine cleavage/attachment site. Following prosegment cleavage, the C-terminal glycine residue of SUMO2 is enzymatically attached to a lysine residue on a target protein. In humans, SUMO2 is conjugated to a variety of molecules in the presence of the SAE1/UBA2 SUMO-activating (E1) enzyme and the UBE2I/Ubc9 SUMO-conjugating (E2) enzyme (4,5). In yeast, the SUMO-activating (E1) enzyme is Aos1/Uba2p (6). Because of the high level of aa sequence identity most studies report effects of SUMO2/3. For example, post-translational addition of SUMO2/3 was shown to modulate the function of ARHGAP21, a RhoGAP protein known to be involved in cell migration (7). Other reports indicate that the SUMOylation with SUMO2/3, but not SUMO1, may represent an important mechanism to protect neurons during episodes of cerebral ischemia (8,9). However, studies suggest that SUMO2/3 expression is regulated in an isoform-specific manner since oxidative stress downregulated the transcription of SUMO3 but not SUMO2 (10).

All SUMO isoforms are translated with additional C-terminal residues that have to be removed to generate the active protein. Pro-SUMO-2 (95 aa) is the inactive precursor of SUMO-2(93 aa) and is processed at the C-terminus by SUMO-2 specific proteases (SENPs). The resulting SUMO-2 protein has the conserved C-terminal Gly-Gly residues that function in activation and conjugation reactions. This protein can be used as a negative control in SUMOylation reactions or as a substrate for SENPs. NCBI accession # NM_006937.

Product Information

Quantity:	500 µg
Source:	<i>E. coli</i> -derived Contains a 6-His tag Accession # NM_006937
Stock:	X mg/ml (X µM) in 50 mM HEPES pH 8.0, 250 mM NaCl, 1mM DTT, 1mM EDTA. Actual concentration varies with lot number.
Purity:	>95%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain.

Use & Storage

Use:	Recombinant Human His6-Pro-SUMO2 can be conjugated to substrate proteins via the subsequent actions of an SUMO-activating (E1) enzyme, an SUMO-conjugating (E2) enzyme, and an SUMO ligase (E3). Reaction conditions will need to be optimized for each specific application. We recommend an initial Recombinant Human His6-Pro-SUMO2 concentration of 10-50 µM.
Storage:	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> • 12 months from date of receipt, -70 °C as supplied. • 3 months, -70 °C under sterile conditions after opening.

Literature

References:

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For research use only. Not for use in humans.