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**MATERIAL DATA SHEET**

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**Recombinant Human SUMO1 Aldehyde C-Terminal Derivative****Cat. # UL-701**

Human Small Ubiquitin-like Modifier 1 (SUMO1), also known as Sentrin, UBL1, and SMT3C, is synthesized as a 101 amino acid (aa) propeptide with a predicted molecular weight of 11.5 kDa. Human SUMO1 is the most unique of the four identified SUMO proteins and shares only 44%, 47%, and 41% aa sequence identity with SUMO2, SUMO3, and SUMO4, respectively. In contrast, human SUMO1 shares 100% aa sequence identity with the mouse ortholog. 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 cleavage of a four aa C-terminal prosegment, the C-terminal glycine residue of SUMO1 is enzymatically attached to a lysine residue on a target protein. In humans, SUMO1 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). SUMOylation can occur without the requirement of a specific SUMO ligase (E3), where SUMO1 is transferred directly from UBE2I/Ubc9 to specific substrates. In Alzheimer's disease models SUMO1 has been shown to influence the generation of Amyloid-beta peptide by promoting the accumulation of BACE-1 (7). Covalent modification of Phosphatase and Tensin Homolog Deleted on Chromosome (PTEN) by SUMO1 is thought to regulate tumorigenesis by retaining PTEN at the plasma membrane, an effect that suppresses PI 3-Kinase/Akt-dependent tumor growth (8).

A potent and highly specific inhibitor of SUMO-specific isopeptidases (SENPs), SUMO1 Aldehyde blocks the hydrolysis of polySUMO chains on substrate proteins *in vitro* and thus enhances polySUMO chain accumulation.

**Product Information**

<b>Quantity:</b>	50 µg
<b>MW:</b>	11.1 kDa
<b>Source:</b>	<i>E. coli</i> -derived Contains a C-terminal Aldehyde Accession # P63165
<b>Stock:</b>	Supplied as a solution in MES and NaCl.
<b>Purity:</b>	>95%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain.

## Use & Storage

**Use:** Add Recombinant Human SUMO1 Aldehyde to *in vitro* assays to inhibit SUMO-specific isopeptidases (SENPs). Reaction conditions will need to be optimized for each specific application. We recommend an initial Recombinant Human SUMO1 Aldehyde concentration of 1-5  $\mu$ M.

**Storage:** Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 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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5. Tatham, M.H. *et al.* (2001) J. Biol. Chem. **276**:35368.
6. Johnson, E.S. *et al.* (1997) EMBO J. **16**:5509.
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***For research use only. Not for use in humans.***