Recombinant Human SUMO2
Cat. # UL-752

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).

SUMOylation can occur without the requirement of a specific E3 ligase activity, where SUMO is transferred directly from UbcH9 to specific substrates. SUMOylated substrates are primarily localized to the nucleus (RanGAP1, RANBP2, PML, p53, Sp100, HIPK2), but there are also cytosolic substrates (IkBa, GLUT1, GLUT4). SUMO modification has been implicated in functions such as nuclear transport, chromosome segregation, transcriptional regulation, apoptosis, and protein stability.

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<th>Product Information</th>
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<tr>
<td><strong>Quantity:</strong> 500 µg</td>
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<tr>
<td><strong>MW:</strong> 11 kDa</td>
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<td><strong>Source:</strong> E. coli-derived</td>
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<td>Acceesion # P61956</td>
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<td><strong>Stock:</strong> Supplied as a solution in HEPES, NaCl, DTT and Glycerol.</td>
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<td><strong>Purity:</strong> &gt;95%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain.</td>
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## Use & Storage

### Use:
Recombinant Human 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 SUMO2 concentration of 10-50 μM.

### 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:

*For research use only. Not for use in humans.*