
MATERIAL DATA SHEET

Recombinant Human SUMO3 Fluorescein

Cat. # UL-766

Human Small Ubiquitin-like Modifier 3 (SUMO3), also known as SMT3A, is synthesized as a 103 amino acid (aa), propeptide with a predicted 11.5 kDa. SUMO3 contains a two aa C-terminal prosegment. Human SUMO3 shares 83% sequence identity with mouse SUMO3. SUMO3 also has high aa sequence homology to SUMO2 and SUMO4, 87% and 75%, respectively. SUMO3 shares only 47% 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 SUMO3 is enzymatically attached to a lysine residue on a target protein. In humans, SUMO3 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 sequence homology most studies report effects of SUMO2/3. For example, 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 conjugation by 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).

SUMO-3 modified with fluorescein via primary amine coupling results in modification of lysine residues as well as the N-terminus. Although having a fully functional C-terminus, lysine modification may limit the ability of this reagent to propagate poly-SUMO chains. This labeled SUMO-3 allows for direct detection spectrophotometrically with higher efficiency and sensitivity than with antibodies.

Product Information	
Quantity:	50 µg
Source:	<i>E. coli</i> -derived Accession # NM_006936
Stock:	Supplied as a solution in HEPES, NaCl and Glycerol.
Purity:	>95%, by PAGE.

Use & Storage

- Use:** Recombinant Human SUMO3 Fluorescein is ideal for use in assays requiring fluorescent detection. Optimal fluorescence at pH 8.0 is monitored with an excitation wavelength of 490 nM and an emission wavelength of 515 nM. Reaction conditions will need to be optimized for each specific application. We recommend an initial Recombinant Human SUMO3 Fluorescein concentration of 0.1-1 μ M.
- Storage:** **Protect from light. 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:

1. Desterro, J.M. *et al.* (1997) FEBS. Lett. **417**:297.
2. Bettermann, K. *et al.* (2012) Cancer Lett. **316**:113.
3. Praefcke, G.J. *et al.* (2012) Trends Biochem. Sci. **37**:23.
4. Okuma, T. *et al.* (1999) Biochem. Biophys. Res. Commun. **254**:693.
5. Tatham, M.H. *et al.* (2001) J. Biol. Chem. **276**:35368.
6. Johnson, E.S. *et al.* (1997) EMBO J. **16**:5509.
7. Bigarella, C.L. *et al.* (2012) FEBS Lett. **586**:3522.
8. Datwyler, A.L. *et al.* (2012) J. Cereb. Blood Flow Metab. **31**:2152.
9. Wang, Z. *et al.* (2012) Protein Expr. Purif. **82**:174.
10. Sang, J. *et al.* (2012) Biochem. J. **435**:489.

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