

## SUMO1 Protein, Human, Recombinant (His)

### General Information

Synonyms:	small ubiquitin-like modifier 1;SMT3C;SMT3;SMT3H3;UBL1;SEN2;DAP1;OFC10;GMP1;PIC1
Protein Construction:	A DNA sequence encoding the human SUMO1 (AAH66306.1) (Ser 2-Val 101) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	AAH66306.1
Molecular Weight:	12.4 kDa (predicted); 22 kDa (reducing conditions)

### QC Testing

Biological Activity:	Measured by its ability to be proteolytically processed by SENP1.>50% of 1 µg Recombinant Human (rh) SUMO1 is cleaved by < 10 ng of recombinant human SENP.
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing 20 mM Tris, 500 mM NaCl, pH 7.5. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

**Reconstitution:**  
A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

**Stability & Storage:**  
It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

**Shipping:**  
In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Small ubiquitin-like modifier protein (SUMO) modification is a highly dynamic process, catalyzed by SUMO-specific activating (E1), conjugating (E2) and ligating (E3) enzymes, and reversed by a family of SUMO-specific proteases (SENPs). Small ubiquitin-like modifier 1 (SUMO1) is a member of the superfamily of ubiquitin-like proteins. Despite its structural similarity with ubiquitin, SUMO1 does not seem to play any role in protein degradation. SUMO1 plays an important role in modulation of NOX activity required for ROS generation. SUMO1 haploinsufficiency results in

cleft lip and palate in animal models. SUMO1 gene variation in human non-syndromic cleft lip with or without cleft palate (NSCLP) development. SUMO-1 may be useful as a novel target for therapy in oral squamous cell carcinoma (SCC) as well as a clinical indicator for tumor recurrence together with Mdm2.

### Reference

- Kim HJ,et al.(2011) SUMO1 attenuates stress-induced ROS generation by inhibiting NADPH oxidase 2. *Biochem Biophys Res Commun.* 410(3): 555-62.
- Zuo Y,et al.(2009) Small ubiquitin-like modifier protein-specific protease 1 and prostate cancer. *Asian J Androl.* 11 (1): 36-8.
- Song T,et al.(2008) SUMO1 polymorphisms are associated with non-syndromic cleft lip with or without cleft palate. *Biochem Biophys Res Commun.* 377(4): 1265-8.
- Katayama A,et al.(2007) Overexpression of small ubiquitin-related modifier-1 and sumoylated Mdm2 in oral squamous cell carcinoma: possible involvement in tumor proliferation and prognosis. *Int J Oncol.* 31(3): 517-24.

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