

Product Specification Sheet

Product: IgG fraction of Anti-SUMO-3 (Human) (Rabbit)

Code: 200-401-491

Lot #: 14251

Size: 500 µg

Physical State: Lyophilized

Antibody Concentration: 5.0 mg/ml (by UV absorbance at 280 nm)

Buffer: 0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2

Stabilizer: None

Preservative: 0.01% (w/v) Sodium Azide

Storage Conditions: Store vial at 4° C prior to restoration. Restore with 0.1 ml of deionized water (or equivalent). For extended storage aliquot contents and freeze at -20° C or below. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use. Expiration date is one (1) year from date of restoration.

Background Information: Covalent modification of cellular proteins by the ubiquitin-like modifier SUMO (small ubiquitin-like modifier) regulates various cellular processes, such as nuclear transport, signal transduction, stress responses and cell cycle progression. But, in contrast to ubiquitination, sumoylation does not tag proteins for degradation by the 26S proteasome, but rather seems to enhance stability or modulate their subcellular compartmentalization. Ubiquitin-like proteins fall into two classes: the first class, ubiquitin-like modifiers (UBLs) function as modifiers in a manner analogous to that of ubiquitin. Examples of UBLs are SUMO, Rub1 (also called Nedd8), Apg8 and Apg12. Proteins of the second class include parkin, RAD23 and DSK2, are designated ubiquitin-domain proteins (UDPs). These proteins contain domains that are related to ubiquitin but are otherwise unrelated to each other. In contrast to UBLs, UDPs are not conjugated to other proteins. Once covalently attached to cellular targets, SUMO regulates protein:protein and protein:DNA interactions, as well as localization and stability of the target protein. Sumoylation occurs in most eukaryotic systems, and SUMO is highly conserved from yeast to human. Where invertebrates have only a single *SUMO* gene termed *SMT3*, three members of the SUMO family have been identified in vertebrates: SUMO-1 and the close homologues SUMO-2 and SUMO-3. SUMO has been called *SMT3* (yeast), *sentrin*, *PIC1*, *GMP1* and *UBL1*. SUMO has been shown to bind and regulate mammalian SP-RINGS (such as Mdm2, PIAS and PML), RanGAP1, RanBP2, p53, p73, HIPK2, TEL, c-Jun, Fas, Daxx, TNFR1, Topo-I, Topo-II, WRN, Sp100, IκB-α, Androgen receptor (AR), GLUT1/4, Drosophila Ttk69, Dorsal, CaMK, yeast Septins, and viral CMV-IE1/2, EBV-BZLF1, HPV/BPV-E1. These bindings implicate SUMO in the stabilization of the target proteins and/or their localization to subcellular complexes. SUMO has an apparent molecular weight of ~12kDa and human SUMO-1 (a 101 amino acid polypeptide) shares 50% sequence identity with SUMO-2 and SUMO-3 and with yeast *SMT3*. SUMO and ubiquitin only show about 18% homology, but both possess a common three-dimensional structure characterized by a tightly packed globular fold with β-sheets wrapped around an α-helix.

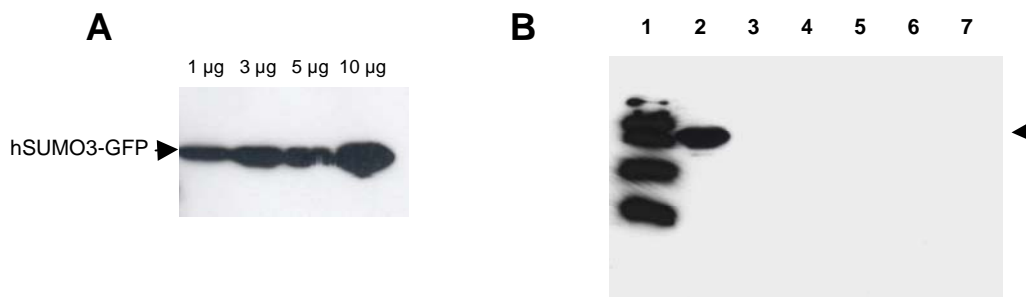


Figure 1. Western blot analysis is shown using Rockland's Affinity Purified anti-Human SUMO-3 antibody to detect GFP-SUMO fusion proteins (arrowheads). Panel A. Increasing concentrations of human GFP-SUMO-3 were run on a SDS-PAGE, transferred onto nitrocellulose, and blocked for 1 hour with 5% non-fat dry milk in TTBS, and probed overnight at 4°C with a 1:1000 dilution of anti-hSUMO-3 antibody in 5% non-fat dry milk in TTBS. Detection occurred using a 1:1,000 dilution of HRP-labeled Donkey anti-Rabbit IgG for 1 hour at room temperature. A chemiluminescence system was used for signal detection (Roche). Panel B. Specificity of the antibody was confirmed by SDS-PAGE of 5 µg of various GFP-SUMO constructs followed by transfer onto nitrocellulose. Lanes: 1. MW marker, 2. GFP-human SUMO-3, 3. GFP-human SUMO-1, 4. GFP-yeast SUMO, 5. GFP-*Arabidopsis thaliana* SUMO-1, 6. GFP-*Arabidopsis thaliana* SUMO-2, 7. GFP-tomato SUMO. After blocking for 1 hour with 5% non-fat dry milk in TTBS, the blot was probed overnight at 4°C with anti-hSUMO-3 antibody diluted and detected as above. Only the human GFP-SUMO-3 band was visualized by chemiluminescence, and no crossreactivity with other SUMO family members was observed.

Application Note(s): This purified polyclonal antibody reacts with human SUMO-3 by western blot and ELISA. Although not tested, this antibody is likely functional in immunohistochemistry and immunoprecipitation. This antibody using the specified conditions may recognize other prominent intrinsic bands (UBLs or conjugates). Other intrinsic bands are readily detectable at lower dilutions. Specific conditions for reactivity should be optimized by the end user. Expect a band approximately 11.6 kDa in size corresponding to human SUMO-3 by western blotting in the appropriate cell lysate or extract.

Recommended Dilutions:	ELISA	1:4,000 - 1:20,000
	WESTERN BLOT	1:500 - 1:2,000
	IF MICROSCOPY	User Optimized
	OTHER APPLICATIONS	User Optimized

Purity and Specificity: This product is an IgG fraction antibody purified from monospecific antiserum by a multi-step process which includes delipidation, salt fractionation and ion exchange chromatography followed by extensive dialysis against the buffer stated above. Assay by immunoelectrophoresis resulted in a single precipitin arc against anti-Rabbit Serum.

Relevant Link(s): NCBI Link [NP_008867](#)

Immunogen: This purified antibody was prepared from rabbit serum after repeated immunizations with recombinant human SUMO-3 protein.

USDA Certification: All products of animal origin manufactured by Rockland Immunochemicals are derived from starting materials of North American origin. Collection was performed in United States Department of Agriculture (USDA) inspected facilities and all materials have been inspected and certified to be free of disease and suitable for exportation.

Protein Sequence: Human SUMO-3, 103 aa, predicted MW 11.6 kDa

1	mseekpkegv	ktendhlnk	vagqdgsvvq	fkikrhtpls	klmkaycerq	glsmrqirf
61	fdgqpinetd	tpaqlemede	dtidvfqqqt	ggvpesslag	hsf	

General Reference(s):

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Related Product(s):

#200-401-427	IgG fraction of Anti-Rub1 (Yeast) (Rabbit)	#200-401-441	IgG fraction of Anti-SUMO (Human) (Rabbit)
#200-401-428	IgG fraction of Anti-SUMO (Yeast) (Rabbit)	#200-401-442	IgG fraction of Anti-HUB1 (Yeast) (Rabbit)
#200-401-431	IgG fraction of Anti-UBIQUITIN (Rabbit)	#200-401-443	IgG fraction of Anti-URM1 (Yeast) (Rabbit)
#200-401-437	IgG fraction of Anti-APG12 (Yeast) (Rabbit)	#611-703-127	HRP Anti-Rabbit IgG [H&L] MX10 (DONKEY)
#200-401-438	IgG fraction of Anti-ISG15 (Human) (Rabbit)	#611-132-122	IRDye800 Anti-Rabbit IgG [H&L] MX10 (GOAT)
#200-401-439	IgG fraction of Anti-APG8 (Yeast) (Rabbit)	#600-101-215	Affinity Purified Anti-GFP MX3 (GOAT)

Note: This product is for research use only and is not intended for therapeutic or diagnostic applications. Please contact a technical service representative for more information.