Datasheet for ABIN233746

anti-SUMO1 antibody

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Overview

Quantity:	100 µg
Target:	SUMO1
Reactivity:	Various Species
Host:	Mouse
Clonality:	Monoclonal
Application:	Western Blotting (WB), Immunohistochemistry (IHC), ELISA

Product Details

Purpose:	SUMO Antibody
Immunogen:	Immunogen: This antibody was produced in mice by repeated immunizations with full-length recombinant yeast SUMO protein. Immunogen Type: Recombinant Protein
Clone:	4F2-F5-G2
Isotype:	IgG1 kappa
Characteristics:	Synonyms: mouse anti-SUMO Antibody, Ubiquitin-like protein SMT3 antibody, SMT3 antibody
Purification:	This product is a monoclonal antibody purified from tissue culture supernatant fluid by Protein A chromatography.
Sterility:	Sterile filtered

Target Details

Target:	SUMO1

Target Details

Alternative Name:	SMT3 (SUMO1 Products)
Background:	Background: 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 ubiquination, 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 humans. 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, TNFRI, Topo-I, Topo-II, WRN, Sp100, IkB-a, 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 ~12 kDa 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 b-sheets wrapped around an a-helix.
Gene ID:	852122, 6320718
UniProt:	Q12306
Pathways:	M Phase, Positive Regulation of Endopeptidase Activity, Protein targeting to Nucleus, Ubiquitin Proteasome Pathway

Application Details

Application Notes:	Immunohistochemistry Dilution: 1:1,000

Application Details

	Application Note: This monoclonal antibody reacts with yeast SUMO (Smt3) tested by western blot and ELISA. Although not tested, this antibody is likely functional in immunohistochemistry and immunoprecipitation. Using the specified conditions, this antibody may recognize other prominent intrinsic bands (UBLs or conjugates). Other intrinsic bands are readily detectable at lower dilutions. Western Blot Dilution: 1:500 - 1:2,000 ELISA Dilution: 1:20,000 Other: User Optimized
Restrictions:	For Research Use only

Handling

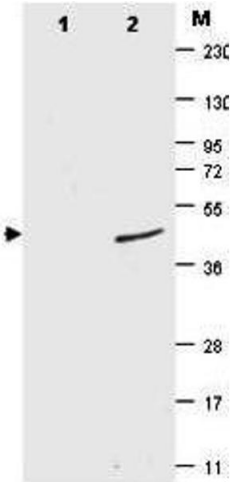
Format:	Liquid
Concentration:	1.9 mg/mL
Buffer:	Buffer: 0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2 Stabilizer: None Preservative: 0.01 % (w/v) Sodium Azide
Preservative:	Sodium azide
Precaution of Use:	This product contains Sodium azide: a POISONOUS AND HAZARDOUS SUBSTANCE which should be handled by trained staff only.
Storage:	4 °C,-20 °C
Storage Comment:	Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. 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.
Expiry Date:	12 months

Publications

Product cited in:	Qian, Bradford, Cooke, Lyons: "Grb7 and Hax1 may colocalize partially to mitochondria in EGF-treated SKBR3 cells and their interaction can affect Caspase3 cleavage of Hax1." in: **Journal of molecular recognition : JMR**, Vol. 29, Issue 7, pp. 318-33, (2017) (PubMed). Meyer, Shah, Zhang, Rohrs, Rao: "Evidence for intermolecular interactions between the

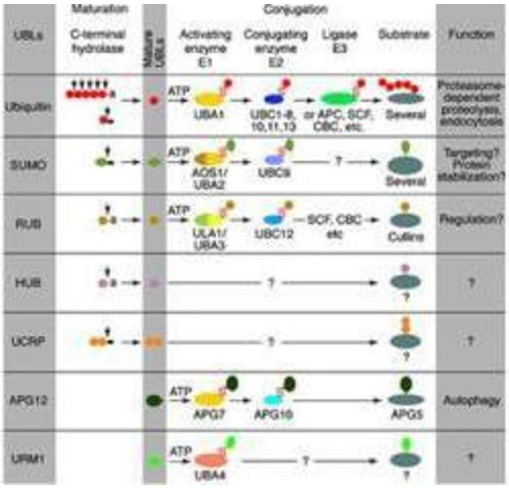
intracellular domains of the arabidopsis receptor-like kinase ACR4, its homologs and the Wox5 transcription factor." in: **PLoS ONE**, Vol. 10, Issue 3, pp. e0118861, (2016) (PubMed).

Images



Western Blotting

Image 1. Figure 2: Immunoblot of ySUMO fusion protein. Anti-ySUMO antibody, generated by immunization with recombinant yeast SUMO, was tested by immunoblot against a SUMO-GFP fusion protein (lane 2). While the actual molecular weight of the fusion protein is 39 kDa, the protein migrates as a 49 kDa band (arrowhead). No reactivity is seen for lane 1 which contains His-tagged GFP protein. The membrane was blocked using BLOTTO. Primary antibody was used at a 1:1,000 dilution in BLOTTO. The membrane was washed and reacted with a 1:10,000 dilution of IRDye® 800 Conjugated Affinity Purified Goat-anti-Mouset IgG (H&L) MX10 (800 nm channel). Molecular weight estimation was made by comparison to prestained MW markers indicated at the right (lane M, 700 nm channel). Other detection systems will yield similar results.



Western Blotting

Image 2. Figure 1: Conjugation pathways for ubiquitin and ubiquitin-like modifiers (UBLs). Most modifiers mature by proteolytic processing from inactive precursors (a; amino acid). Arrowheads point to the cleavage sites. Ubiquitin is expressed either as polyubiquitin or as a fusion with ribosomal proteins. Conjugation requires activating (E1) and conjugating (E2) enzymes that form thiolesters (S) with the modifiers. Modification of cullins by RUB involves SCF(SKP1/cullin-1/F-box protein) /CBC(cullin-2/elongin B/elonginC)-like E3 enzymes that are also involved in ubiquitination. In contrast to ubiquitin, the UBLs do not

seem to form multi-UBL chains. UCRP(ISG15) resembles two ubiquitin moieties linked head-to-tail. Whether HUB1 functions as a modifier is currently unclear. APG12 and URM1 are distinct from the other modifiers because they are unrelated in sequence to ubiquitin. Data contributed by S.Jentsch