SENP2 (catalytic domain) (human), (recombinant) (GST-tag)

Post-translation modification of proteins plays a crucial role in altering protein function, localization, and turnover. Modification includes not only chemical modifications such as acetylation and phosphorylation but also the conjugation of proteins to target substrates. Although ubiquitylation is generally regarded to target a protein for degradation, it is now clear that certain types of ubiquitin modifications may have other regulatory effects. The covalent modification of proteins by SUMO-1 is reversible and is mediated by SUMO-specific proteases. These proteases are thought to have dual roles. They are responsible first for the initial processing of SUMO-1 by cleavage of the precursor peptide at the carboxyl terminus of the protein, generating a C-terminal diglycine motif, and second for the subsequent processing and cleavage of high molecular weight SUMO-1 conjugates, releasing SUMO-1 and reducing the conjugation status of the target proteins. A number of SUMO-specific proteases have been predicted based on homology to the first identified protease yeast Ulp1, the Smt3 (SUMO-1 homologue) deconjugating enzyme, and are thought to be members of the general family of cysteine proteases. SENP2 was discovered both through its homology to other SUMO proteases and its interactions with murine Axin, a regulator of the Wnt signalling pathway. When overexpressed in tissue culture cells or under *in vitro* conditions, the murine SENP2 homologue (Smt3IP2) cleaves conjugates of SUMO-1, SUMO-2, and SUMO-3. It has been shown that full-length human SENP2 associates with nuclear pores in a manner similar to Ulp1 in yeast. This association occurs exclusively with the nuclear face of the pore and requires sequences near the N-terminus of SENP2. SENP2 also binds specifically to Nup153, a nucleoporin localized to the nucleoplasmic face of the nuclear pore and this association requires the same domain of SENP2 that mediates its targeting *in vivo*. A mutant SENP2 protein that is unable to bind Nup153 is significantly more effective in promoting deconjugation of SUMO-1-conjugated species, indicating that localization of SENP2 to the nuclear pore plays an important role in spatially restricting the activity of this enzyme.

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Ordering Information

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BML-UW9765-0100	100µg

Manuals, SDS & CofA

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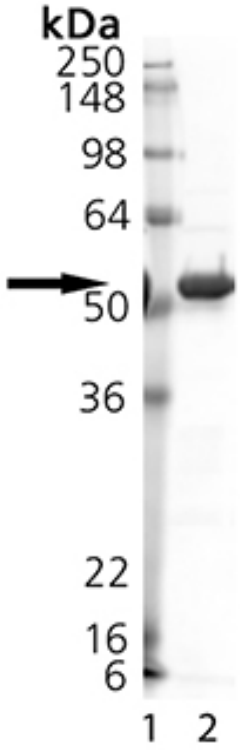
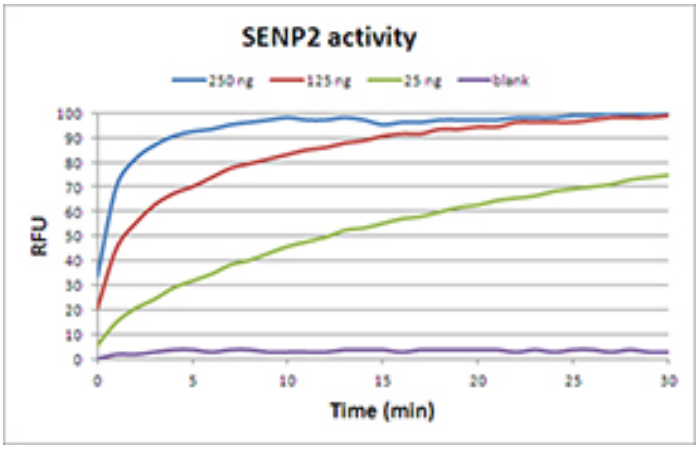


SDS-PAGE Analysis. Lane 1: MW Marker, Lane 2: 2 µg SENP2.



Activity Analysis. De-SUMOylation measured by cleavage SUMO-2-AMC fluorogenic substrate (Prod. No. BML-0045) using 250 ng, 125 ng, and 25 ng (approximately 4.5 nM, 22.5 nM, and 45 nM) SENP2.

Handling & Storage

Handling	After opening, prepare aliquots, freeze in liquid nitrogen and store at -80°C. Avoid freeze/thaw cycles.
Long Term Storage	-80°C
Shipping	Dry Ice

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	Sentrin-specific protease 2
Application Notes	Activity Assay: deSUMOylation
Biological Activity	This fragment has full de-SUMOylating activity.
Formulation	Liquid. In 50mM TRIS, pH 7.5, containing 150mM sodium chloride, 10% glycerol, and 0.5mM DTT.
MW	~52kDa
Purity	≥90% (densitometry)
Purity Detail	Purified by multi-step chromatography.
Sequence	Residues 368-549 of SENP2 (catalytic domain) fused at the N-terminus to a GST-tag.
Source	Produced in *E. coli.*
Specificity	Demonstrated recognition of SUMO-1 and SUMO-2 *in vitro*
UniProt ID	Q9HC62

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