SUMO Protease 1

Cat. # 4010

Background: LifeSensors' industry leading SUMO Protease 1 (Ulp1), a highly active and robust recombinant protease, cleaves SUMO from recombinant fusion proteins. Unlike thrombin, EK, or TEV protease, which recognize short linear sequences, SUMO Protease 1 recognizes the tertiary structure of SUMO. As a result, SUMO Protease 1 never cleaves within the fused protein of interest. SUMO Protease 1 cleaves consistently over a broad range of temperature (30°C is optimal), pH [5.5 – 9.5], and ionic strength. SUMO Protease 1 contains a polyhistidine tag at the N-terminus, making it easy to remove from the cleavage reaction by affinity chromatography.

Application: Removal of SUMO tags from recombinant, fusion proteins.

Product Information

Purity: ≥ 95% by SDS-PAGE and RP-HPLC

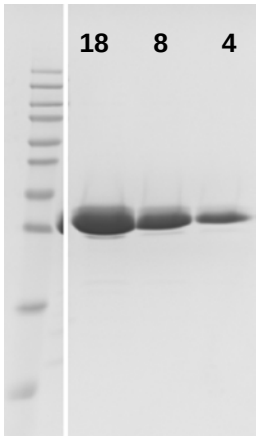
Molecular Weight: 26595.9Da by MS (26595.4 expected)

Specific Activity: ≥ 1 x 10^5 U/mg, 1 U will cleave >90 µg of SUMO-GFP in 1 hr at 37° C

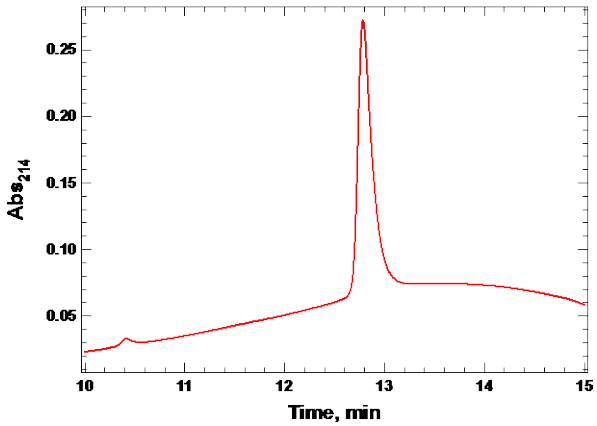
Physical State: 10U/µl in 50mM Tris-HCl, pH 7.5, 150mM NaCl, 5mM DTT, 10% Glycerol

Quantity: 250, 500, 1000, or 5000 Units

Storage: -80° C. Avoid repeated freeze/thaw cycles



SDS-PAGE



RP-HPLC

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Protocol

1. After SUMO-protein fusion is purified: dialyze sample against proper buffer (e.g. PBS, pH 7.4 or 20mM TRIS, pH 8.0 containing 150 mM NaCl) at 4˚C
2. Add SUMO Protease 1 to substrate (1 unit enzyme to 10-100 µg substrate should suffice, depends on SUMO fusion protein); add DTT to final 2 mM
3. Either:
    a. incubate the mixture at 30°C for 1 h (mix gently do not vortex), or
    b. incubate the mixture at 4°C overnight
    c. (you can also perform a. followed by b.)
4. Check the cleavage using SDS-PAGE. If the SUMO-fusion is not cleaved up to 95% add more SUMO protease 1.

References

1. Li, S.-J. and M. Hochstrasser. 1999. A new protease required for cell cycle progression in yeast. *Nature* **398,**246-251.
2. Li, S.-J., W. Hankey, and M. Hochstrasser. 2005. Preparation and characterization of yeast and human desumoylating enzymes. *Meth Enzymol* **398,**457-467.
3. Mossessova, E. and C.D. Lima. 2000. Ulp1-SUMO crystal structure and genetic analysis reveal conserved interactions and a regulatory element essential for cell growth in yeast. *Mol Cell* **5,**865-
4. Malakhov, M.P., M.R. Mattern, O.A. Malakhova, M. Drinker, S.D. Weeks, and T.R. Butt. 2004. SUMO fusions and SUMO-specific protease for efficient expression and purification of proteins. *J Struct Funct Genomics* **5,**75-86.