



Ulp1 (y-300): sc-98257

BACKGROUND

Modification of cellular proteins by the ubiquitin-like protein SUMO provides an essential function for nuclear processes and cell cycle progression in yeast. In *Saccharomyces cerevisiae*, both sumoylating and desumoylating activities are essential for viability. Yeast contains two SUMO-1-deconjugating enzymes, Ulp1 and Ulp2, that localize to nuclear pores and in the nucleoplasm, respectively. The yeast Ubl-specific protease, Ulp1, catalyzes two essential functions in the SUMO pathway: processing of full-length SUMO to its mature form and deconjugation of SUMO from targeted proteins. Ulp1 cleaves proteins from Smt3 and SUMO-1, but not from ubiquitin. Proteins related to Ulp1 are present in many organisms, including several human pathogens. The catalytic C-domain of Ulp1 must be excluded from the nucleoplasm for cell viability. This is achieved by the noncatalytic N-domain, which tethers Ulp1 to the nuclear pores. This location could allow Ulp1 to remove SUMO-1 from sumoylated cargo proteins during their passage through the nuclear pore channel. However, the bulk of cellular Ulp1 does not associate with nucleoporins, but instead associates with three karyopherins, Pse1, Kap95, and Kap60.

REFERENCES

1. Li, S.J. and Hochstrasser, M. 1999. A new protease required for cell-cycle progression in yeast. *Nature* 398: 246-251.
2. Mossesso, E. and Lima, C.D. 2000. Ulp1-SUMO crystal structure and genetic analysis reveal conserved interactions and a regulatory element essential for cell growth in yeast. *Mol. Cell.* 5: 865-876.
3. Sheng, W., and Liao, X. 2002. Solution structure of a yeast ubiquitin-like protein Smt3: the role of structurally less defined sequences in protein-protein recognitions. *Protein Sci.* 11: 1482-1491.
4. Li, S.J., and Hochstrasser, M. 2003. The Ulp1 SUMO isopeptidase: distinct domains required for viability, nuclear envelope localization, and substrate specificity. *J. Cell. Biol.* 160: 1069-1082.
5. Panse, V.G., Kuster, B., Gerstberger, T., and Hurt, E. 2003. Unconventional tethering of Ulp1 to the transport channel of the nuclear pore complex by karyopherins. *Nat. Cell Biol.* 5: 21-27.

SOURCE

Ulp1 (y-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping at the N-terminus of Ulp1 of *Saccharomyces cerevisiae* origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

Ulp1 (y-300) is recommended for detection of Ulp1 of *Saccharomyces cerevisiae* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.