SANTA CRUZ BIOTECHNOLOGY, INC.

SUG1 (2837C4a): sc-81388

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The Power to Question

BACKGROUND

The 26S Proteasome is a highly ordered proteinase complex consisting of a 20S core and a 19S regulator. While the core is responsible for the proteolytic activity of the proteasome, the regulator contains several ATPase subunits which function in the ATP-dependent degradation of ubiquitinated proteins and confer substrate specificity to the 26S complex. SUG1, also known as PSMC5 (Proteasome 26S subunit ATPase 5), p45 or S8, is an ATPase subunit that is an integral part of the 26S Proteasome complex. Localized to the cytoplasm and nucleus, SUG1 is part of the 19S regulator and functions in the ubiquitin/proteasome-mediated degradation of proteins (specifically receptors) found in the endoplasmic reticulum (ER). Recent studies suggest that assembly of the 26S Proteasome is dependent upon phosphorylation of SUG1 by a protein kinase. *In vitro,* SUG1 also interacts with RXR (retinoid X receptor) and TR (thyroid hormone receptor), suggesting a possible role in transcriptional regulation.

REFERENCES

1. Fraser, R.A., et al. 1997. SUG1, a putative transcriptional mediator and subunit of the PA700 proteasome regulatory complex, is a DNA helicase. J. Biol. Chem. 272: 7122-7126.
2. Makino, Y., et al. 1997. SUG1, a component of the 26S Proteasome, is an ATPase stimulated by specific RNAs. J. Biol. Chem. 272: 23201-23205.
3. Masuyama, H. and MacDonald, P.N. 1999. Proteasome-mediated degradation of the vitamin D receptor (VDR) and a putative role for SUG1 interaction with the AF-2 domain of VDR. J. Cell. Biochem. 71: 429-440.
4. Su, K., et al. 2000. Human SUG1/p45 is involved in the proteasome-dependent degradation of Sp1. Biochem. J. 348: 281-289.
5. Chang, C., et al. 2001. The GAL4 activation domain binds SUG2 protein, a proteasome component, *in vivo* and *in vitro*. J. Biol. Chem. 276: 30956-30963.
6. Giannì, M., et al. 2002. Phosphorylation by p38 MAPK and recruitment of SUG1 are required for RA-induced RARγ degradation and transactivation. EMBO J. 21: 3760-3769.
7. Yamada, H.Y. and Gorbsky, G.J. 2006. Inhibition of TRIP1/S8/hSUG1, a component of the human proteasome, enhances mitotic apoptosis induced by spindle poisons. Mol. Cancer Ther. 5: 29-38.

CHROMOSOMAL LOCATION

Genetic locus: PSMC5 (human) mapping to 17q23.3; Psmc5 (mouse) mapping to 11 E1.

SOURCE

SUG1 (2837C4a) is a mouse monoclonal antibody raised against a recombinant protein corresponding to a region near the N-terminus of SUG1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 1.0% stabilizer protein.

APPLICATIONS

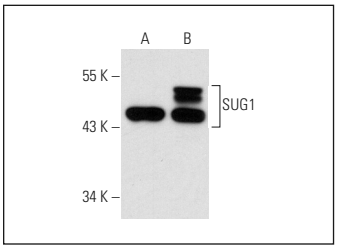
SUG1 (2837C4a) is recommended for detection of SUG1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for SUG1 siRNA (h): sc-76603, SUG1 siRNA (m): sc-76604, SUG1 shRNA Plasmid (h): sc-76603-SH, SUG1 shRNA Plasmid (m): sc-76604-SH, SUG1 shRNA (h) Lentiviral Particles: sc-76603-V and SUG1 shRNA (m) Lentiviral Particles: sc-76604-V.

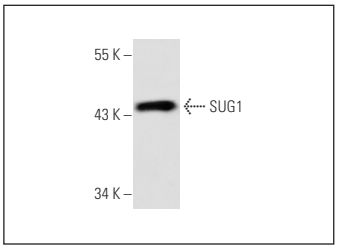
Molecular Weight of SUG1: 45 kDa.

Positive Controls: LADMAC whole cell lysate: sc-364189, SUG1 (h2): 293 Lysate: sc-172033 or Hep G2 cell lysate: sc-2227.

DATA



SUG1 (2837C4a): sc-81388. Western blot analysis of SUG1 expression in non-transfected: sc-110760 (**A**) and human SUG1 transfected: sc-172033 (**B**) 293 whole cell lysates.



SUG1 (2837C4a): sc-81388. Western blot analysis of SUG1 expression in LADMAC whole cell lysate.

SELECT PRODUCT CITATIONS

1. Melo, S.P., et al. 2010. Functional dissection of the N-terminal degron of human thymidylate synthase. Biochem. J. 432: 217-226.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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

PROTOCOLS

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