

# Cdc53 (yN-18): sc-6716

## BACKGROUND

Cell cycle progression is controlled at a point late in G<sub>1</sub> designated Start. Passage through Start requires the activity of the cyclin-dependent protein kinase Cdc28. Transition from G<sub>1</sub> to S phase requires the association of Cdc28 with members of the G<sub>1</sub> cyclin family. This progression also requires the destruction of the S-phase cyclin/Cdk inhibitor, Sic1. Sic1 proteolysis is mediated in part by the ubiquitin-conjugating enzyme Cdc34. Cdc4, a potential ubiquitin-protein ligase, is also involved in the degradation of Sic1. Another protein thought to play a role in the ubiquitin-protein ligase complex is Cdc53. This protein binds to Cdc34 and targets phosphorylated G<sub>1</sub> cyclins for ubiquitin-mediated degradation.

## REFERENCES

1. Yochem, J. and Byers, B. 1987. Structural comparison of the yeast cell division cycle gene Cdc4 and a related pseudogene. *J. Mol. Biol.* 195: 233-245.
2. Nasmyth, K. 1993. Control of the yeast cell cycle by the Cdc28 protein kinase. *Curr. Opin. Cell Biol.* 5: 166-179.
3. Sherlock, G. and Rosamond, J. 1993. Starting to cycle: G<sub>1</sub> controls regulating cell division in budding yeast. *J. Gen. Microbiol.* 139: 2531-2541.
4. Knapp, D., Bhoite, L., Stillman, D.J. and Nasmyth, K. 1996. The transcription factor Swi5 regulates expression of the cyclin kinase inhibitor p40Sic1. *Mol. Cell. Biol.* 16: 5701-5707.
5. Levine, K., Huang, K. and Cross, F.R. 1996. *Saccharomyces cerevisiae* G<sub>1</sub> cyclins differ in their intrinsic functional specificities. *Mol. Cell. Biol.* 16: 6794-6803.
6. Willems, A.R., Lanker, S., Patton, E.E., Craig, K.L., Nason, T.F., Mathias, N., Kobayashi, R., Wittenberg, C. and Tyers, M. 1996. Cdc53 targets phosphorylated G<sub>1</sub> cyclins for degradation by the ubiquitin proteolytic pathway. *Cell* 86: 453-463.
7. Deshaies, R.J. 1997. Phosphorylation and proteolysis: partners in the regulation of cell division in budding yeast. *Curr. Opin. Genet. Dev.* 7: 7-16.
8. Verma, R., Feldman, R.M. and Deshaies, R.J. 1997. Sic1 is ubiquitinated *in vitro* by a pathway that requires Cdc4, Cdc34, and cyclin/Cdk activities. *Mol. Biol. Cell* 8: 1427-1437.

## SOURCE

Cdc53 (yN-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Cdc53 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.

Blocking peptide available for competition studies, sc-6716 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## RESEARCH USE

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

## APPLICATIONS

Cdc53 (yN-18) is recommended for detection of Cdc53 of *Saccharomyces cerevisiae* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of Cdc53: 94 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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.

## SELECT PRODUCT CITATIONS

1. Kamura, T., et al. 1999. The Rbx1 subunit of SCF and VHL E3 ubiquitin ligase activates Rub1 modification of cullins Cdc53 and CUL-2. *Genes Dev.* 13: 2928-2933.
2. Kurz, T., et al. 2005. The conserved protein DCN-1/ DCN1P is required for cullin neddylation in *C. elegans* and *S. cerevisiae*. *Nature* 435: 1257-1261.
3. Kurz, T., et al. 2008. DCN1 functions as a scaffold-type E3 ligase for cullin neddylation. *Mol. Cell* 29: 23-35.
4. Mimura, S., et al. 2009. SCF(Dia2) regulates DNA replication forks during S-phase in budding yeast. *EMBO J.* 28: 3693-3705.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.