

Cdc25B (DCS-164): sc-65504

BACKGROUND

The Cdc2/cyclin B enzyme, involved in regulation of mitosis in eukaryotic cells, is subject to multiple levels of control. Among these, the regulation of the catalytic subunit by tyrosine phosphorylation is the best understood. tyrosine phosphorylation inhibits the Cdc2/cyclin B complex, while tyrosine dephosphorylation, which occurs at the onset of mitosis, directly activates the pre-MPH complex. The Cdc25 gene serves as a rate-limiting mitotic activator, apparently due to its action as the Cdc2 tyrosine phosphatase. In the absence of Cdc25, Cdc2 accumulates in a tyrosine phosphorylated state. In addition, Cdc25 proteins from a variety of species have been shown to share a low degree of sequence similarity with other tyrosine phosphatases. The Cdc25 gene family consists of at least three members that share approximately 40% identity in their most conserved carboxy terminal sequences.

REFERENCES

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2. Gould, K. and Nurse, P. 1989. tyrosine phosphorylation of the fission Cdc2 protein kinase regulates entry into mitosis. *Nature* 342: 39-45.
3. Doree, M. 1990. Control of M phase by maturation promoting factor. *Curr. Opin. Cell Biol.* 2: 269-273.
4. Jessus, C., et al. 1990. Direct activation of Cdc2 with phosphatase: identification of p13suc1-sensitive and insensitive steps. *FEBS Lett.* 266: 4-8.
5. Boutros, R., et al. 2007. CDC25B involvement in the centrosome duplication cycle and in microtubule nucleation. *Cancer Res.* 67: 11557-11564.
6. Varmeh-Ziaie, S., et al. 2007. The dual specificity phosphatase Cdc25B, but not the closely related Cdc25C, is capable of inhibiting cellular proliferation in a manner dependent upon its catalytic activity. *J. Biol. Chem.* 282: 24633-24641.
7. Kieffer, I., et al. 2007. Differential mitotic degradation of the CDC25B phosphatase variants. *Oncogene* 26: 7847-7858.
8. Aressy, B., et al. 2008. Moderate variations in CDC25B protein levels modulate the response to DNA damaging agents. *Cell Cycle* 7: 2234-2240.

CHROMOSOMAL LOCATION

Genetic locus: CDC25B (human) mapping to 20p13; Cdc25b (mouse) mapping to 2 F1.

SOURCE

Cdc25B (DCS-164) is a mouse monoclonal antibody raised against full length Cdc25B of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Cdc25B (DCS-164) is recommended for detection of Cdc25B of mouse, rat and human 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).

Suitable for use as control antibody for Cdc25B siRNA (h): sc-37552, Cdc25B siRNA (m): sc-37553, Cdc25B shRNA Plasmid (h): sc-37552-SH, Cdc25B shRNA Plasmid (m): sc-37553-SH, Cdc25B shRNA (h) Lentiviral Particles: sc-37552-V and Cdc25B shRNA (m) Lentiviral Particles: sc-37553-V.

Molecular Weight of Cdc25B: 60 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, HEL 92.1.7 cell lysate: sc-2270 or HeLa whole cell lysate: sc-2200.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

SELECT PRODUCT CITATIONS

1. van der Laan, S., et al. 2013. High Dub3 expression in mouse ESCs couples the G₁/S checkpoint to pluripotency. *Mol. Cell* 52: 366-379.

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.

PROTOCOLS

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