SANTA CRUZ BIOTECHNOLOGY, INC.

Cdc25B (DCS-162): sc-56266

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The Power to Question

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

1. Murray, A.W., et al. 1989. Dominoes and clocks: the union of two views of the cell cycle. Science 246: 614-621.
2. Gould, K., et al. 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. Boutros, R., et al. 2008. Asymmetric localization of the Cdc25B phosphatase to the mother centrosome during interphase. Cell Cycle 7: 401-406.
9. 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.

SOURCE

Cdc25B (3F116) is a mouse monoclonal antibody raised against full length Cdc25B of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Cdc25B (DCS-162) is available conjugated to agarose (sc-56266 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-56266 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56266 PE), fluorescein (sc-56266 FITC), Alexa Fluor® 488 (sc-56266 AF488), Alexa Fluor® 546 (sc-56266 AF546), Alexa Fluor® 594 (sc-56266 AF594) or Alexa Fluor® 647 (sc-56266 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56266 AF680) or Alexa Fluor® 790 (sc-56266 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Cdc25B (DCS-162) is recommended for detection of Cdc25B of human origin by 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), immunohistochemistry (including paraffin-embedded sections) (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 shRNA Plasmid (h): sc-37552-SH and Cdc25B shRNA (h) Lentiviral Particles: sc-37552-V.

Molecular Weight of Cdc25B: 60 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 2) 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. 3) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

SELECT PRODUCT CITATIONS

1. Valdez, B.C., et al. 2011. The synergistic cytotoxicity of clofarabine, fludarabine and busulfan in AML cells involves ATM pathway activation and chromatin remodeling. Biochem. Pharmacol. 81: 222-232.

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.