SANTA CRUZ BIOTECHNOLOGY, INC.

Cdc25A (DCS 121): sc-56263

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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

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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., Ducommun, B. and Beach, D. 1990. Direct activation of Cdc2 with phosphatase: identification of $p13^{suc1}$-sensitive and insensitive steps. FEBS Lett. 266: 4-8.
5. Moreno, S., Nurse, P. and Russell, P. 1990. Regulation of mitosis by cyclic accumulation of $p80^{Cdc25}$ mitotic inducer in fission yeast. Nature 344: 549-552.
6. Alfa, C.E., Ducommun, B., Beach, D. and Hyams, J.S. 1990. Distinct nuclear and spindle pole body populations of cyclin-Cdc2 in fission yeast. Nature 347: 680-682.
7. Moreno, S. and Nurse, P. 1991. Clues to action of Cdc25 protein. Nature 351: 194.
8. Gautier, J., Solomon, M.J., Booher, R.N., Bazan, J.F. and Kirschner, M.W. 1991. Cdc25 is a specific tyrosine phosphatase that directly activates $p34^{Cdc2}$. Cell 67: 197-211.
9. Galaktionov, K. and Beach, D. 1991. Specific activation of Cdc25 tyrosine phosphatases by B-type cyclins: evidence for multiple roles of mitotic cyclins. Cell 67: 1181-1194.

CHROMOSOMAL LOCATION

Genetic locus: CDC25A (human) mapping to 3p21.31; Cdc25a (mouse) mapping to 9 F2.

SOURCE

Cdc25A (DCS 121) is a mouse monoclonal antibody raised against full length Cdc25A of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Cdc25A (DCS 121) is recommended for detection of Cdc25A 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Cdc25A siRNA (h): sc-29254, Cdc25A siRNA (m): sc-35037, Cdc25A shRNA Plasmid (h): sc-29254-SH, Cdc25A shRNA Plasmid (m): sc-35037-SH, Cdc25A shRNA (h) Lentiviral Particles: sc-29254-V and Cdc25A shRNA (m) Lentiviral Particles: sc-35037-V.

Molecular Weight of Cdc25A: 67 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, SK-N-MC cell lysate: sc-2237 or BJAB whole cell lysate: sc-2207.

SELECT PRODUCT CITATIONS

1. Lv, M., Li, Y., Tian, X., Dai, S., Sun, J., Jin, G. and Jiang, S. 2016. Lentivirus-mediated knockdown of NLK inhibits small-cell lung cancer growth and metastasis. Drug Des. Devel. Ther. 10: 3737-3746.

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.

CONJUGATES

See **Cdc25A (F-6): sc-7389** for Cdc25A antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.