SANTA CRUZ BIOTECHNOLOGY, INC.

Cdc25A (5H51): sc-70824

SANTA CRUZ BIOTECHNOLOGY

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. Gould, K., et al. 1989. Tyrosine phosphorylation of the fission Cdc2 protein kinase regulates entry into mitosis. Nature 342: 39-45.
2. Murray, A.W., et al. 1989. Dominoes and clocks: the union of two views of the cell cycle. Science 246: 614-621.

CHROMOSOMAL LOCATION

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

SOURCE

Cdc25A (5H51) is a mouse monoclonal antibody raised against purified recombinant Cdc25A.

PRODUCT

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

RESEARCH USE

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

APPLICATIONS

Cdc25A (5H51) 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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.

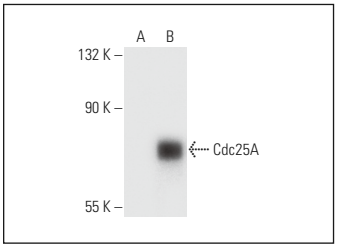
Molecular Weight of Cdc25A: 67 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, SK-N-MC cell lysate: sc-2237 or Cdc25A (h4): 293 Lysate: sc-158364.

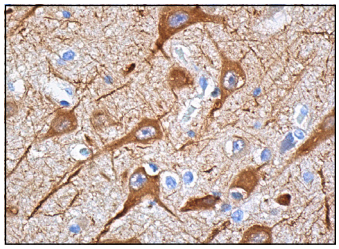
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Cdc25A (5H51): sc-70824. Western blot analysis of Cdc25A expression in non-transfected: sc-110760 (**A**) and human Cdc25A transfected: sc-158364 (**B**) 293 whole cell lysates.



Cdc25A (5H51): sc-70824. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic staining of neuronal cells and neuropil staining.

SELECT PRODUCT CITATIONS

1. Pereg, Y., et al. 2010. Ubiquitin hydrolase Dub3 promotes oncogenic transformation by stabilizing Cdc25A. Nat. Cell Biol. 12: 400-406.
2. Brunetto, E., et al. 2013. Cdc25A protein stability represents a previously unrecognized target of HER2 signaling in human breast cancer: implication for a potential clinical relevance in trastuzumab treatment. Neoplasia 15: 579-590.
3. Job, A., et al. 2018. Inactivation of PRIM1 function sensitizes cancer cells to ATR and CHK1 inhibitors. Neoplasia 20: 1135-1143.
4. Schneider, H.E., et al. 2024. Synthetic lethality between ATR and POLA1 reveals a potential new target for individualized cancer therapy. Neoplasia 57: 101038.

STORAGE

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

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.