SANTA CRUZ BIOTECHNOLOGY, INC.

Cdc45 (H-300): sc-20685

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cell cycle events are regulated by the sequential activation and deactivation of cyclin dependent kinases (Cdks) and by the proteolysis of cyclins. The cell division cycle (Cdc) genes are required at various points in the cell cycle. Cdc25A, Cdc25B and Cdc25C protein tyrosine phosphatases function as mitotic activators by dephosphorylating Cdc2 p34 on regulatory tyrosine residues. Cdc6 is the human homolog of *Saccharomyces cerevisiae* Cdc6, which is involved in the initiation of DNA replication. Cdc37 appears to facilitate Cdk4/cyclin D1 complex formation and has been shown to form a stable complex with HSP 90. Cdc34, Cdc27 and Cdc16 function as ubiquitin-conjugating enzymes. Cdc34 is thought to be the structural and functional homolog of *Saccharomyces cerevisiae* Cdc34, which is essential for the G_1 to S phase transition. Cdc16 and Cdc27 are components of the APC (anaphase-promoting complex) which ubiquitinates cyclin B, resulting in cyclin B/Cdk complex degradation.

CHROMOSOMAL LOCATION

Genetic locus: CDC45L (human) mapping to 22q11.21; Cdc45l (mouse) mapping to 16 A3.

SOURCE

Cdc45 (H-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping at the N-terminus of Cdc45 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Cdc45 (H-300) is recommended for detection of Cdc45 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), 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).

Cdc45 (H-300) is also recommended for detection of Cdc45 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Cdc45 siRNA (h): sc-35044, Cdc45 siRNA (m): sc-35045, Cdc45 shRNA Plasmid (h): sc-35044-SH, Cdc45 shRNA Plasmid (m): sc-35045-SH, Cdc45 shRNA (h) Lentiviral Particles: sc-35044-V and Cdc45 shRNA (m) Lentiviral Particles: sc-35045-V.

Molecular Weight of Cdc45: 60 kDa.

Positive Controls: Cdc45 (h3): 293T Lysate: sc-175019, Jurkat whole cell lysate: sc-2204 or A-431 nuclear extract: sc-2122.

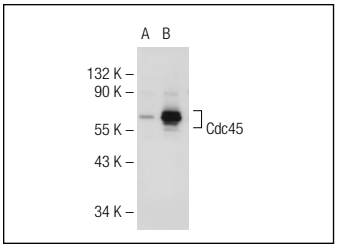
STORAGE

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

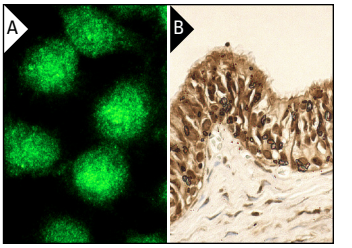
RESEARCH USE

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

DATA



Cdc45 (H-300): sc-20685. Western blot analysis of Cdc45 expression in non-transfected: sc-117752 (**A**) and human Cdc45 transfected: sc-175019 (**B**) 293T whole cell lysates.



Cdc45 (H-300): sc-20685. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic staining of cells in seminiferous ducts (**B**).

SELECT PRODUCT CITATIONS

1. Alexandrow, M.G., et al. 2005. Chromatin decondensation in S-phase involves recruitment of Cdk2 by Cdc45 and Histone H1 phosphorylation. J. Cell Biol. 168: 875-886.
2. Syljuasen, R.G., et al. 2005. Inhibition of human Chk1 causes increased initiation of DNA replication, phosphorylation of ATR targets, and DNA breakage. Mol. Cell. Biol. 25: 3553-3562.
3. Pollok, S., et al. 2007. Human Cdc45 is a proliferation-associated antigen. FEBS J. 274: 3669-3684.
4. Bauerschmidt, C., et al. 2007. Interactions of human Cdc45 with the Mcm2-7 complex, the GINS complex, and DNA polymerases δ and ε during S phase. Genes Cells 12: 745-758.
5. Rampakakis, E., et al. 2008. Ku is involved in cell growth, DNA replication and G_1-S transition. J. Cell Sci. 121: 590-600.
6. Rodriguez, R., et al. 2008. Apoptosis induced by replication inhibitors in Chk1-depleted cells is dependent upon the helicase cofactor Cdc45. Cell Death Differ. 15: 889-898.
7. Ballabeni, A., et al. 2009. Human Cdt1 associates with Cdc7 and recruits Cdc45 to chromatin during S phase. J. Biol. Chem. 284: 3028-3036.
8. Bugler, B., et al. 2010. Unscheduled expression of Cdc25B in S-phase leads to replicative stress and DNA damage. Mol. Cancer 9: 29.
9. Gagou, M.E., et al. 2010. Enhanced H2AX phosphorylation, DNA replication fork arrest, and cell death in the absence of Chk1. Mol. Biol. Cell 21: 739-752.
10. Li, J., et al. 2011. Phosphorylation of MCM3 protein by cyclin E/cyclin-dependent kinase 2 (Cdk2) regulates its function in cell cycle. J. Biol. Chem. 286: 39776-39785.