SANTA CRUZ BIOTECHNOLOGY, INC.

Dbf4b (D-17): sc-164150

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The Power to Question

BACKGROUND

The Dbf4/Cdc7 protein kinase is essential for the activation of replication origins during S phase. Dbf4/Cdc7 efficiently phosphorylates several proteins that are required for the initiation of DNA replication, including five of the six minichromosome maintenance (Mcm) proteins and the p180 subunit of DNA polymerase α-primase. This protein complex consists of the catalytic subunit Cdc7 associating with the regulatory and activating subunit Dbf4, and the kinase activity of the complex is regulated throughout the cell cycle mainly by fluctuating levels of Dbf4. Cdc7 also forms a complex with Dbf4b, a 615 amino acid nuclear protein. The Dbf4b/Cdc7 complex is required for progression of S and M phases of the cell cycle. Dbf4b is widely expressed, with highest expression found in testis. The expression of Dbf4b increases as cells enter S phase, and continues at a high rate through M phase. Dbf4b contains one BRCT domain and one DBF4-type zinc finger.

REFERENCES

1. Bousset, K., et al. 1998. The Cdc7 protein kinase is required for origin firing during S phase. Genes Dev. 12: 480-490.
2. Lepke, M., et al. 1999. Identification, characterization and chromosomal localization of the cognate human and murine DBF4 genes. Mol. Gen. Genet. 262: 220-229.
3. Masai, H., et al. 1999. CDC7 kinase complex as a molecular switch for DNA replication. Front. Biosci. 4: 834-840.
4. Jiang, W., et al. 1999. Mammalian Cdc7-Dbf4 protein kinase complex is essential for initiation of DNA replication. EMBO J. 18: 5703-5713.
5. Weinreich, M., et al. 1999. Cdc7p-Dbf4p kinase binds to chromatin during S phase and is regulated by both the APC and the RAD53 checkpoint pathway. EMBO J. 18: 5334-5346.
6. Pasero, P., et al. 1999. A role for the Cdc7 kinase regulatory subunit Dbf4p in the formation of initiation-competent origins of replication. Genes Dev. 13: 2159-2176.

CHROMOSOMAL LOCATION

Genetic locus: DBF4B (human) mapping to 17q21.31.

SOURCE

Dbf4b (D-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Dbf4b 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.

Blocking peptide available for competition studies, sc-164150 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

Dbf4b (D-17) is recommended for detection of Dbf4b of 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); non cross-reactive with Dbf4.

Suitable for use as control antibody for Dbf4b siRNA (h): sc-93916, Dbf4b shRNA Plasmid (h): sc-93916-SH and Dbf4b shRNA (h) Lentiviral Particles: sc-93916-V.

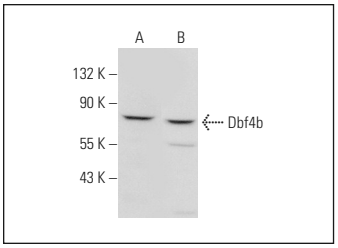
Molecular Weight of Dbf4b isoforms 1/2/3/4: 67/47/55/18 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204 or MDA-MB-435S whole cell lysate: sc-364184.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Dbf4b (D-17): sc-164150. Western blot analysis of Dbf4b expression in Jurkat (**A**) and MDA-MB-435 (**B**) whole cell lysates.

RESEARCH USE

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