SANTA CRUZ BIOTECHNOLOGY, INC.

Chk2 (N-17): sc-8812

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 proteolysis of cyclins. Chk1 and Chk2 are involved in these processes as regulators of Cdks. Chk1 and Chk2 both function as essential components in the G_2 DNA damage checkpoint by phosphorylating Cdc25C in response to DNA damage. Phosphorylation inhibits Cdc25C activity, thereby blocking mitosis. Cdc25A, Cdc25B and Cdc25C protein tyrosine phosphatases function as mitotic activators by dephosphorylating Cdc2 p34 on regulatory tyrosine residues. It has also been shown that Chk1 can phosphorylate Wee1 *in vitro,* providing evidence that the hyperphosphorylated form of Wee1, seen in cells delayed by Chk1 overexpression, is due to phosphorylation by Chk1.

REFERENCES

1. Gautier, J., et al. 1991. Cdc25 is a specific tyrosine phosphatase that directly activates $p34^{Cdc2}$. Cell 67: 197-211.
2. Barinaga, M. 1995. A new twist to the cell cycle. Science 269: 631-632.
3. O'Connell, M.J., et al. 1997. Chk1 is a Wee1 kinase in the G_2 DNA damage checkpoint inhibiting Cdc2 by Y15 phosphorylation. EMBO J. 16: 545-554.
4. Sanchez, Y., et al. 1997. Conservation of the Chk1 checkpoint pathway in mammals: linkage of DNA damage to Cdk regulation through Cdc25. Science 277: 1497-1501.
5. Peng, C.Y., et al. 1997. Mitotic and G_2 checkpoint control: regulation of 14-3-3 protein binding by phosphorylation of Cdc25C on Serine 216. Science 277: 1501-1505.
6. Matsuoka, S., et al. 1998. Linkage of ATM to cell cycle regulation by the Chk2 protein kinase. Science 282: 1893-1897.

CHROMOSOMAL LOCATION

Genetic locus: CHEK2 (human) mapping to 22q12.1.

SOURCE

Chk2 (N-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Chk2 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-8812 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.

RESEARCH USE

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

APPLICATIONS

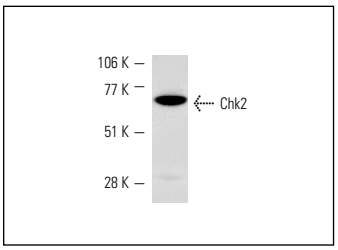
Chk2 (N-17) is recommended for detection of Chk2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Chk2 siRNA (h): sc-29271, Chk2 shRNA Plasmid (h): sc-29271-SH and Chk2 shRNA (h) Lentiviral Particles: sc-29271-V.

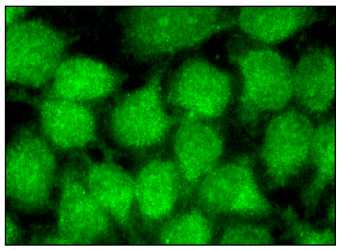
Molecular Weight of Chk2: 66 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HL-60 whole cell lysate: sc-2209 or HeLa + heat shock cell lysate: sc-2272.

DATA



Chk2 (N-17): sc-8812. Western blot analysis of Chk2 expression in heat-shocked HeLa whole cell lysate.



Chk2 (N-17): sc-8812. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Ahn, J.Y., et al. 2002. Phosphorylation of threonine 68 promotes oligomerization and autophosphorylation of the Chk2 protein kinase via the forkhead-associated domain. J. Biol. Chem. 277: 19389-19395.
2. Xu, X., et al. 2002. Chk2 activation and phosphorylation-dependent oligomerization. Mol. Cell. Biol. 22: 4419-4432.
3. Reddy, A., et al. 2002. Analysis of CHK2 in vulval neoplasia. Br. J. Cancer 86: 756-760.
4. Parsels, L.A., et al. 2004. 5-fluoro-2'-deoxyuridine-induced cdc25A accumulation correlates with premature mitotic entry and clonogenic death in human colon cancer cells. Cancer Res. 64: 6588-6594.
5. Morgan, M.A., et al. 2005. Role of checkpoint kinase 1 in preventing premature mitosis in response to gemcitabine. Cancer Res. 65: 6835-6842.
6. Henderson, M.J., et al. 2006. EDD mediates DNA damage-induced activation of Chk2. J. Biol. Chem. 281: 39990-40000.