SANTA CRUZ BIOTECHNOLOGY, INC.

Chk2 (73C175): sc-56293

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., Solomon, M.J., Booher, R.N., Bazan, J.F. and Kirschner, M.W. 1991. Cdc25 is a specific tyrosine phosphatase that directly activates p34cdc2. Cell 67: 197-211.
2. Barinaga, M. 1995. A new twist to the cell cycle. Science 269: 631-632.
3. Sanchez, Y., Wong, C., Thoma, R.S., Richman, R., Wu, Z., Piwnica-Worms, H. and Elledge, S.J. 1997. Conservation of the Chk1 checkpoint pathway in mammals: linkage of DNA damage to Cdk regulation through Cdc25. Science 277: 1497-1501.
4. O'Connell, M.J., Raleigh, J.M., Verkade, H.M. and Nurse, P. 1997. Chk1 is a wee1 kinase in the G_2 DNA damage checkpoint inhibiting Cdc2 by Y15 phosphorylation. EMBO J. 16: 545-554.
5. Peng, C.Y., Graves, P.R., Thoma, R.S., Wu, Z., Shaw, A.S. and Piwnica-Worms, H. 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., Huang, M. and Elledge, S.J. 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 (73C175) is a mouse monoclonal antibody raised against a synthetic Chk2 peptide of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

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 (73C175) is recommended for detection of Chk2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

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.

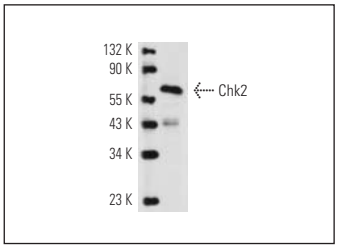
Molecular Weight of Chk2: 66 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, CCRF-CEM cell lysate: sc-2225 or WEHI-231 whole cell lysate: sc-2213.

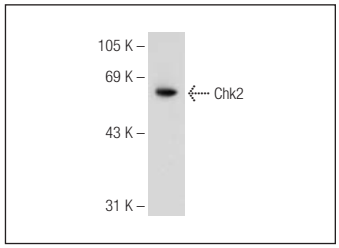
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (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).

DATA



Chk2 (73C175): sc-56293. Western blot analysis of Chk2 expression in HeLa whole cell lysate.



Chk2 (73C175): sc-56293. Western blot analysis of Chk2 expression in HL-60 whole cell lysate.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.