SANTA CRUZ BIOTECHNOLOGY, INC.

Chk2 (B-4): sc-17748

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 p34Cdc2. Cell 67: 197-211.
2. Barinaga, M. 1995. A new twist to the cell cycle. Science 269: 631-632.
3. 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.

CHROMOSOMAL LOCATION

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

SOURCE

Chk2 (B-4) is a mouse monoclonal antibody raised against amino acids 1-300 of Chk2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Chk2 (B-4) is recommended for detection of Chk2 of human origin by Western Blotting (starting dilution 1:500, dilution range 1:500-1:2,500), 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).

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: CCRF-CEM cell lysate: sc-2225, Jurkat whole cell lysate: sc-2204 or AN3 CA cell lysate: sc-24662.

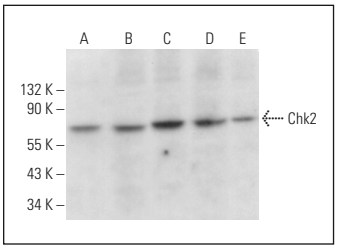
RESEARCH USE

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

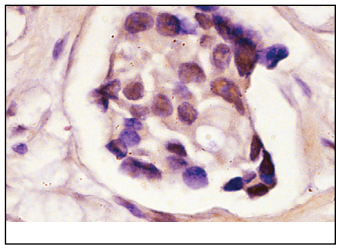
STORAGE

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

DATA



Chk2 (B-4): sc-17748. Western blot analysis of Chk2 expression in Jurkat (**A**), CCRF-CEM (**B**), AN3 CA (**C**) and NTERA-2 cl.D1 (**D**) whole cell lysates and HEL 92.1.7 nuclear extract (**E**).



Chk2 (B-4): sc-17748. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast tumor showing nuclear staining.

SELECT PRODUCT CITATIONS

1. Hammond, E.M., et al. 2004. Inhibition of ATR leads to increased sensitivity to hypoxia/reoxygenation. Cancer Res. 64: 6556-6562.
2. Adamson, A.W., et al. 2005. Methylator-induced, mismatch repair-dependent G_2 arrest is activated through Chk1 and Chk2. Mol. Biol. Cell 16: 1513-1526.
3. Chabalier-Taste, C., et al. 2008. BRCA1 is regulated by Chk2 in response to spindle damage. Biochim. Biophys. Acta 1783: 2223-2233.
4. Vijayakumar, S., et al. 2009. Phosphorylation of human DNA ligase I regulates its interaction with replication factor C and its participation in DNA replication and DNA repair. Mol. Cell. Biol. 29: 2042-2052.
5. Lee, H.J., et al. 2010. Mitotic DNA damage response: Polo-like kinase-1 is dephosphorylated through ATM-Chk1 pathway. Cell Cycle 9: 2389-2398.
6. Dalvai, M., et al. 2012. Doxorubicin promotes transcriptional upregulation of Cdc25B in cancer cells by releasing Sp1 from the promoter. Oncogene 32: 5123-5128.
7. Chouinard, G., et al. 2013. Cell cycle-dependent localization of CHK2 at centrosomes during mitosis. Cell Div. 8: 7.
8. Hall, W.A., et al. 2014. Low CHD5 expression activates the DNA damage response and predicts poor outcome in patients undergoing adjuvant therapy for resected pancreatic cancer. Oncogene 33: 5450-5456.
9. Yuan, Y., et al. 2015. Single-stranded DNA oligomers stimulate error-prone alternative repair of DNA double-strand breaks through hijacking Ku protein. Nucleic Acids Res. 43: 10264-10276.

See **Chk2 (A-11): sc-17747** for Chk2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.