

# Chk2 (19): sc-136251

## 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<sub>2</sub> 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

- Gautier, J., et al. 1991. Cdc25 is a specific tyrosine phosphatase that directly activates p34<sup>cdc2</sup>. *Cell* 67: 197-211.
- Barinaga, M. 1995. A new twist to the cell cycle. *Science* 269: 631-632.
- O'Connell, M.J., et al. 1997. Chk1 is a Wee1 kinase in the G<sub>2</sub> DNA damage checkpoint inhibiting Cdc2 by Y15 phosphorylation. *EMBO J.* 16: 545-554.
- 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.
- Peng, C.Y., et al. 1997. Mitotic and G<sub>2</sub> checkpoint control: regulation of 14-3-3 protein binding by phosphorylation of Cdc25C on Serine 216. *Science* 277: 1501-1505.
- Matsuoka, S., et al. 1998. Linkage of ATM to cell cycle regulation by the Chk2 protein kinase. *Science* 282: 1893-1897.
- Zaugg, K., et al. 2007. Cross-talk between Chk1 and Chk2 in double-mutant thymocytes. *Proc. Natl. Acad. Sci. USA* 104: 3805-3810.
- Abdelmohsen, K., et al. 2007. Phosphorylation of HuR by Chk2 regulates SIRT1 expression. *Mol. Cell* 25: 543-557.
- Carlessi, L., et al. 2007. Biochemical and cellular characterization of VRX0466617, a novel and selective inhibitor for the checkpoint kinase Chk2. *Mol. Cancer Ther.* 6: 935-944.

## CHROMOSOMAL LOCATION

Genetic locus: CHEK2 (human) mapping to 22q12.1; Chk2 (mouse) mapping to 5 F.

## SOURCE

Chk2 (19) is a mouse monoclonal antibody raised against amino acids 31-234 of Chk2 of mouse origin.

## PRODUCT

Each vial contains 50 µg IgG<sub>1</sub> in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

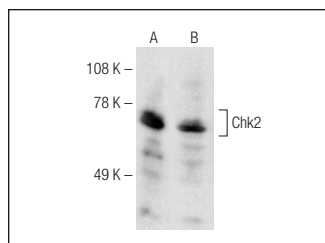
Chk2 (19) is recommended for detection of Chk2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Chk2 siRNA (h): sc-29271, Chk2 siRNA (m): sc-29272, Chk2 shRNA Plasmid (h): sc-29271-SH, Chk2 shRNA Plasmid (m): sc-29272-SH, Chk2 shRNA (h) Lentiviral Particles: sc-29271-V and Chk2 shRNA (m) Lentiviral Particles: sc-29272-V.

Molecular Weight of Chk2: 66 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, HeLa whole cell lysate: sc-2200 or WEHI-231 whole cell lysate: sc-2213.

## DATA



Chk2 (19): sc-136251. Western blot analysis of Chk2 expression in HeLa (A) and HL-60 (B) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Lin, Y.T., et al. 2017. Induction of mitotic delay in pharyngeal and nasopharyngeal carcinoma cells using an aqueous extract of *Ajuga bracteosa*. *Int. J. Med. Sci.* 14: 462-469.
- Zhang, Y., et al. 2019. CDS-1548 induces apoptosis in HeLa cells by activating caspase 3. *Oncol. Lett.* 18: 1881-1887.
- Zhang, Y., et al. 2020. Small molecule CDS-3078 induces G<sub>2</sub>/M phase arrest and mitochondria-mediated apoptosis in HeLa cells. *Exp. Ther. Med.* 20: 284.

## 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. Not for resale.



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