

Chk1 (2G11D5): sc-56288

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 G₂ 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^{cdc2}. *Cell* 67: 197-211.
- Barinaga, M. 1995. A new twist to the cell cycle. *Science* 269: 631-632.
- 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: CHEK1 (human) mapping to 11q24.2; Chk1 (mouse) mapping to 9 A4.

SOURCE

Chk1 (2G11D5) is a mouse monoclonal antibody raised against Ni-NTA purified recombinant Chk1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Chk1 (2G11D5) is recommended for detection of Chk1 of mouse, rat and 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 Chk1 siRNA (h): sc-29269, Chk1 siRNA (m): sc-29270, Chk1 shRNA Plasmid (h): sc-29269-SH, Chk1 shRNA Plasmid (m): sc-29270-SH, Chk1 shRNA (h) Lentiviral Particles: sc-29269-V and Chk1 shRNA (m) Lentiviral Particles: sc-29270-V.

Molecular Weight of Chk1: 56 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, MDA-MB-231 cell lysate: sc-2232 or HCT-116 whole cell lysate: sc-364175.

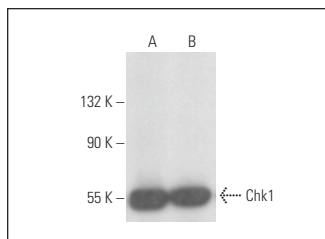
STORAGE

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

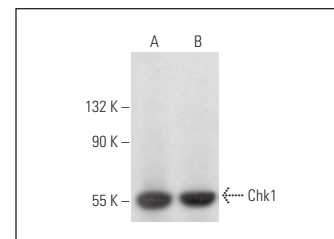
RESEARCH USE

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

DATA



Chk1 (2G11D5): sc-56288. Western blot analysis of Chk1 expression in Jurkat (A) and MDA-MB-231 (B) whole cell lysates.



Chk1 (2G11D5): sc-56288. Western blot analysis of Chk1 expression in HCT-116 (A) and PANC-1 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

- Stewart, G.S., et al. 2007. Riddle immunodeficiency syndrome is linked to defects in 53BP1-mediated DNA damage signaling. *Proc. Natl. Acad. Sci. USA* 104: 16910-16915.
- Liu, B., et al. 2012. Proteomic identification of common SCF ubiquitin ligase FBXO6-interacting glycoproteins in three kinds of cells. *J. Proteome Res.* 11: 1773-1781.
- Silden, E., et al. 2013. Expression of TP53 isoforms p53β or p53γ enhances chemosensitivity in TP53^{null} cell lines. *PLoS ONE* 8: e56276.
- Chen, Z.W., et al. 2014. FFBXL5-mediated degradation of single-stranded DNA-binding protein hSSB1 controls DNA damage response. *Nucleic Acids Res.* 42: 11560-11569.
- Singh, S., et al. 2017. Mutant p53 establishes targetable tumor dependency by promoting unscheduled replication. *J. Clin. Invest.* 127: 1839-1855.
- Zhang, Y., et al. 2019. CDS-1548 induces apoptosis in HeLa cells by activating caspase 3. *Oncol. Lett.* 18: 1881-1887.
- Ma, Q., et al. 2020. Targeting Ku86 enhances X-ray-induced radiotherapy sensitivity in serous ovarian cancer cells. *Int. J. Biochem. Cell Biol.* 121: 105705.
- Moses, N., et al. 2020. HDAC6 regulates radiosensitivity of non-small cell lung cancer by promoting degradation of Chk1. *Cells* 9: 2237.
- Zhang, Y., et al. 2020. Small molecule CDS-3078 induces G₂/M phase arrest and mitochondria-mediated apoptosis in HeLa cells. *Exp. Ther. Med.* 20: 284.



See **Chk1 (G-4): sc-8408** for Chk1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.