SANTA CRUZ BIOTECHNOLOGY, INC.

Chk1 (D-7): sc-377231

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 Wee 1 *in vitro,* providing evidence that the hyperphosphorylated form of Wee 1, 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.

CHROMOSOMAL LOCATION

Genetic locus: CHEK1 (human) mapping to 11q24.2; Chek1 (mouse) mapping to 9 A4.

SOURCE

Chk1 (D-7) is a mouse monoclonal antibody raised against amino acids 1-476 representing full length Chk1 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

Chk1 (D-7) is recommended for detection of Chk1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 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: MDA-MB-231 cell lysate: sc-2232, K-562 whole cell lysate: sc-2203 or Jurkat whole cell lysate: sc-2204.

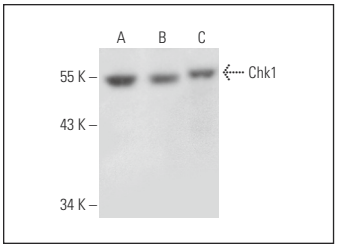
STORAGE

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

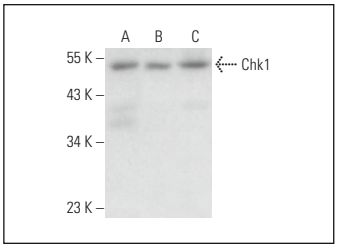
RESEARCH USE

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

DATA



Chk1 (D-7): sc-377231. Western blot analysis of Chk1 expression in Jurkat (**A**), MDA-MB-231 (**B**) and K-562 (**C**) whole cell lysates.



Chk1 (D-7): sc-377231. Western blot analysis of Chk1 expression in Jurkat (**A**), CCRF-CEM (**B**) and U-698-M (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Chang, L., et al. 2015. Hypoxia-targeted drug Q6 induces G_2-M arrest and apoptosis via poisoning Topoisomerase II under hypoxia. PLoS ONE 10: e0144506.
2. Cui, X., et al. 2016. Potential effect of smoking on semen quality through DNA damage and the downregulation of Chk1 in sperm. Mol. Med. Rep. 14: 753-761.
3. Jung, H.J., et al. 2017. The ubiquitin-like with PHD and RING finger domains 1 (UHRF1)/DNA methyltransferase 1 (Dnmt1) axis is a primary regulator of cell senescence. J. Biol. Chem. 292: 3729-3739.
4. Saxena, S., et al. 2019. ATR signaling uncouples the role of Rad51 paralogs in homologous recombination and replication stress response. Cell Rep. 29: 551-559.e4.
5. Wang, W., et al. 2020. All-*trans* retinoic acid exerts selective anti-FLT3-ITD acute myeloid leukemia efficacy through downregulating Chk1 kinase. Cancer Lett. 473: 130-138.
6. Li, T., et al. 2020. MiR-185 targets POT1 to induce telomere dysfunction and cellular senescence. Aging 12: 14791-14807.
7. Wei, L., et al. 2021. miRNA-199b-3p suppresses growth and progression of ovarian cancer via the Chk1/E-cadherin/EMT signaling pathway by targeting ZEB1. Oncol. Rep. 45: 569-581.
8. Lee, C.J., et al. 2021. Profilin-1; a novel regulator of DNA damage response and repair machinery in keratinocytes. Mol. Biol. Rep. 48: 1439-1452.
9. Liu, Y., et al. 2022. PCDHB14 promotes ferroptosis and is a novel tumor suppressor in hepatocellular carcinoma. Oncogene 41: 3570-3583.

CONJUGATES

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.