SANTA CRUZ BIOTECHNOLOGY, INC.

Chk1 (G-4): sc-8408

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.

CHROMOSOMAL LOCATION

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

SOURCE

Chk1 (G-4) 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_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Chk1 (G-4) is available conjugated to agarose (sc-8408 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to either phycoerythrin (sc-8408 PE), fluorescein (sc-8408 FITC), Alexa Fluor® 488 (sc-8408 AF488), Alexa Fluor® 546 (sc-8408 AF546), Alexa Fluor® 594 (sc-8408 AF594) or Alexa Fluor® 647 (sc-8408 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-8408 AF680) or Alexa Fluor® 790 (sc-8408 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Chk1 (G-4) 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), 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), flow cytometry (1 µg per 1 x 10^6 cells) 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.

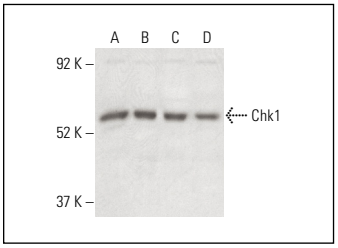
Molecular Weight of Chk1: 56 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, MDA-MB-231 cell lysate: sc-2232 or HCT-116 whole cell lysate: sc-364175.

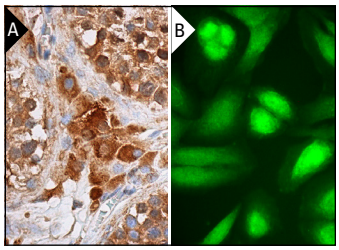
STORAGE

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

DATA



Chk1 (G-4): sc-8408. Western blot analysis of Chk1 expression in K-562 (**A**), HCT-116 (**B**), MDA-MB-231 (**C**) and MEG-01 (**D**) whole cell lysates. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



Chk1 (G-4): sc-8408. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic staining of cells in seminiferous ducts and Leydig cells (**A**). Chk1 (G-4) Alexa Fluor® 488: sc-8408 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing nuclear and cytoplasmic localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**B**).

SELECT PRODUCT CITATIONS

1. Zhao, H., et al. 2001. ATR-mediated checkpoint pathways regulate phosphorylation and activation of human Chk1. Mol. Cell. Biol. 21: 4131-4139.
2. Fredebohm, J., et al. 2013. Depletion of RAD17 sensitizes pancreatic cancer cells to gemcitabine. J. Cell Sci. 126: 3380-3389.
3. Colbert, L.E., et al. 2014. CHD7 expression predicts survival outcomes in patients with resected pancreatic cancer. Cancer Res. 74: 2677-2687.
4. Ochi, T., et al. 2015. DNA repair. PAXX, a paralog of XRCC4 and XLF, interacts with Ku to promote DNA double-strand break repair. Science 347: 185-188.
5. Zhang, H., et al. 2016. Loss of H3K9me3 correlates with Atm activation and Histone H2AX phosphorylation deficiencies in hutchinson-gilford progeria syndrome. PLoS ONE 11: e0167454.
6. Foskolou, I.P., et al. 2017. Ribonucleotide reductase requires subunit switching in hypoxia to maintain DNA replication. Mol. Cell 66: 206-220.e9.
7. Almeida, R., et al. 2018. Chromatin conformation regulates the coordination between DNA replication and transcription. Nat. Commun. 9: 1590.
8. Hustedt, N., et al. 2019. A consensus set of genetic vulnerabilities to ATR inhibition. Open Biol. 9: 190156.
9. Ito, S.S., et al. 2020. Inhibition of the ATR kinase enhances 5-FU sensitivity independently of non-homologous end-joining and homologous recombination repair pathways. J. Biol. Chem. 295: 12946-12961.
10. Branigan, T.B., et al. 2021. MMB-FOXM1-driven premature mitosis is required for CHK1 inhibitor sensitivity. Cell Rep. 34: 108808.

RESEARCH USE

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