SANTA CRUZ BIOTECHNOLOGY, INC.

Chk2 (A-12): sc-5278

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 Wee1 *in vitro,* providing evidence that the hyperphosphorylated form of Wee1, seen in cells delayed by Chk1 overexpression, is due to phosphorylation by Chk1.

CHROMOSOMAL LOCATION

Genetic locus: CHEK2 (human) mapping to 22q12.1; Chek2 (mouse) mapping to 5 F.

SOURCE

Chk2 (A-12) is a mouse monoclonal antibody raised against amino acids 1-300 of Chk2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Chk2 (A-12) is available conjugated to agarose (sc-5278 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-5278 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-5278 PE), fluorescein (sc-5278 FITC), Alexa Fluor® 488 (sc-5278 AF488), Alexa Fluor® 546 (sc-5278 AF546), Alexa Fluor® 594 (sc-5278 AF594) or Alexa Fluor® 647 (sc-5278 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-5278 AF680) or Alexa Fluor® 790 (sc-5278 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Chk2 (A-12) 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)], 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 Chk2 siRNA (h): sc-29271, Chk1 siRNA (m): sc-29272, Chk2 shRNA Plasmid (h): sc-29271-SH, Chk1 shRNA Plasmid (m): sc-29272-SH, Chk2 shRNA (h) Lentiviral Particles: sc-29271-V and Chk1 shRNA (m) Lentiviral Particles: sc-29272-V.

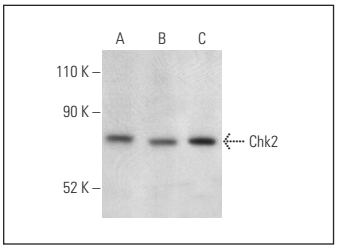
Molecular Weight of Chk2: 66 kDa.

Positive Controls: BC_3H1 cell lysate: sc-2299, MIA PaCa-2 cell lysate: sc-2285 or L6 whole cell lysate: sc-364196.

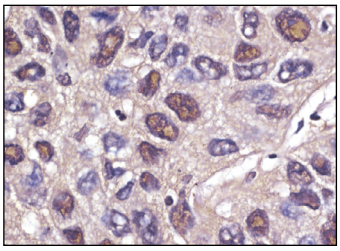
STORAGE

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

DATA



Chk2 (A-12): sc-5278. Western blot analysis of Chk2 expression in MIA PaCa-2 (**A**), BC_3H1 (**B**) and L6 (**C**) whole cell lysates. Detection reagent used: m-IgG_{2b} BP-HRP: sc-542741.



Chk2 (A-12): sc-5278. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human lung tumor showing nuclear staining.

SELECT PRODUCT CITATIONS

1. Schwarz, J.K., et al. 2003. Regulation of the Chk2 protein kinase by oligomerization-mediated *cis*- and *trans*-phosphorylation. Mol. Cancer Res. 1: 598-609.
2. Kaneko, M., et al. 2012. Potentiation of bleomycin in Jurkat cells by fungal pycnidione. Biol. Pharm. Bull. 35: 18-28.
3. Liu, J., et al.2013. Phosphoglycerate dehydrogenase induces glioma cells proliferation and invasion by stabilizing forkhead box M1. J. Neurooncol. 111: 245-255.
4. Su, W.P., et al. 2014. Chronic treatment with cisplatin induces replication-dependent sister chromatid recombination to confer cisplatin-resistant phenotype in nasopharyngeal carcinoma. Oncotarget 5: 6323-6337.
5. di Masi, A., et al. 2016. PML nuclear body disruption impairs DNA double-strand break sensing and repair in APL. Cell Death Dis. 7: e2308.
5. Kramer, D., et al. 2017. Strong antitumor synergy between DNA crosslinking and HSP90 inhibition causes massive premitotic DNA fragmentation in ovarian cancer cells. Cell Death Differ. 24: 300-316.
7. Yao, J., et al. 2018. Chaetominine induces cell cycle arrest in human leukemia K562 and colon cancer SW1116 cells. Oncol. Lett. 16: 4671-4678.
8. Kohutova, A., et al. 2019. Ligase 3-mediated end-joining maintains genome stability of human embryonic stem cells. FASEB J. 33: 6778-6788.
9. Shibata, E. and Dutta, A. 2020. A human cancer cell line initiates DNA replication normally in the absence of ORC5 and ORC2 proteins. J. Biol. Chem. 295: 16949-16959.
10. Codenotti, S., et al. 2021. Caveolin-1 promotes radioresistance in rhabdomyosarcoma through increased oxidative stress protection and DNA repair. Cancer Lett. 505: 1-12.

RESEARCH USE

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