SANTA CRUZ BIOTECHNOLOGY, INC.

Chk2 (DCS-270): sc-56296

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.

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.
3. O'Connell, M.J., et al. 1997. Chk1 is a Wee1 kinase in the G_2 DNA damage checkpoint inhibiting Cdc2 by Y15 phosphorylation. EMBO J. 16: 545-554.

CHROMOSOMAL LOCATION

Genetic locus: CHEK2 (human) mapping to 22q12.1.

SOURCE

Chk2 (DCS-270) is a mouse monoclonal antibody raised against a Chk2 fusion protein 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.

APPLICATIONS

Chk2 (DCS-270) is recommended for detection of Chk2 of 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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

Molecular Weight of Chk2: 66 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, CCRF-CEM cell lysate: sc-2225 or Jurkat whole cell lysate: sc-2204.

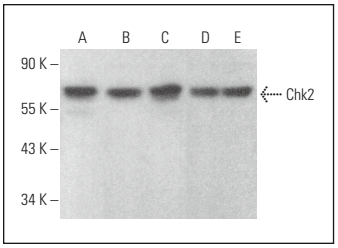
STORAGE

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

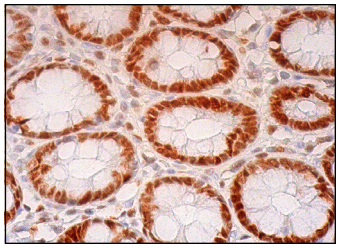
RESEARCH USE

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

DATA



Chk2 (DCS-270): sc-56296. Western blot analysis of Chk2 expression in CCRF-CEM (**A**), K-562 (**B**), Jurkat (**C**), MCF7 (**D**) and HeLa (**E**) whole cell lysates.



Chk2 (DCS-270): sc-56296. Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing nuclear staining of glandular cells and endothelial cells.

SELECT PRODUCT CITATIONS

1. Agner, J., et al. 2005. Differential impact of diverse anticancer chemotherapeutics on the Cdc25A-degradation checkpoint pathway. Exp. Cell Res. 302: 162-169.
2. Stolz, A., et al. 2010. The CHK2-BRCA1 tumour suppressor pathway ensures chromosomal stability in human somatic cells. Nat. Cell Biol. 12: 492-499.
3. Kousholt, A.N., et al. 2012. CtIP-dependent DNA resection is required for DNA damage checkpoint maintenance but not initiation. J. Cell Biol. 197: 869-876.
4. Fugger, K., et al. 2013. FBH1 co-operates with MUS81 in inducing DNA double-strand breaks and cell death following replication stress. Nat. Commun. 4: 1423.
5. Ertych, N., et al. 2014. Increased microtubule assembly rates influence chromosomal instability in colorectal cancer cells. Nat. Cell Biol. 16: 779-791.
6. Stolz, A., et al. 2015. A phenotypic screen identifies microtubule plus end assembly regulators that can function in mitotic spindle orientation. Cell Cycle 14: 827-837.
7. Ahlskog, J.K., et al. 2016. Atm/ATR-mediated phosphorylation of PALB2 promotes Rad51 function. EMBO Rep. 17: 671-681.
8. Hua, F., et al. 2018. Daidzein exerts anticancer activity towards SKOV3 human ovarian cancer cells by inducing apoptosis and cell cycle arrest, and inhibiting the Raf/MEK/ERK cascade. Int. J. Mol. Med. 41: 3485-3492.
9. Movsisyan, N. and Pardo, L.A. 2020. Kv10.1 regulates microtubule dynamics during mitosis. Cancers 12: E2409.

CONJUGATES

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