SANTA CRUZ BIOTECHNOLOGY, INC.

Chk2 siRNA (h): sc-29271

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.

PRODUCT

Chk2 siRNA (h) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Chk2 shRNA Plasmid (h): sc-29271-SH and Chk2 shRNA (h) Lentiviral Particles: sc-29271-V as alternate gene silencing products.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Chk2 siRNA (h) is recommended for the inhibition of Chk2 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

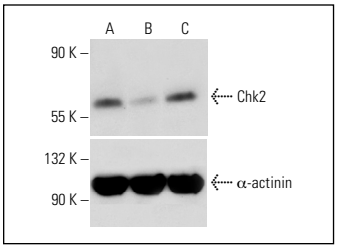
GENE EXPRESSION MONITORING

Chk2 (A-11): sc-17747 is recommended as a control antibody for monitoring of Chk2 gene expression knockdown by Western blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

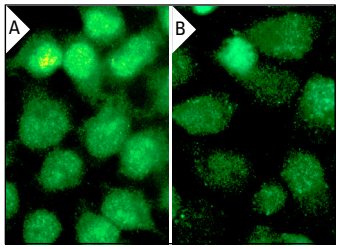
RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Chk2 gene expression knockdown using RT-PCR Primer: Chk2 (h)-PR: sc-29271-PR (20 µl, 458 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



Chk2 siRNA (h): sc-29271. Western blot analysis of human Chk2 expression in non-transfected (**A**), Chk2 siRNA Plasmid transfected (**B**) and control siRNA Plasmid transfected (**C**) HeLa cells. Blot probed with Chk2 (A-12): sc-5278. α-actinin (H-2): sc-17829 used as specificity and loading control.



Chk2 siRNA (h): sc-29271. Immunofluorescence staining of methanol-fixed, control HeLa (**A**) and Chk2 siRNA silenced HeLa (**B**) cells showing diminished nuclear staining in the siRNA silenced cells. Cells probed with Chk2 (C-18): sc-8813.

SELECT PRODUCT CITATIONS

1. Deep, G., et al. 2006. Silymarin and silibinin cause G_1 and G_2-M cell cycle arrest via distinct circuitries in human prostate cancer PC-3 cells: a comparison of flavanone silibinin with flavanolignan mixture silymarin. Oncogene 25: 1053-1069.
2. McNeely, S., et al. 2010. Chk1 inhibition after replicative stress activates a double strand break response mediated by ATM and DNA-dependent protein kinase. Cell Cycle 9: 995-1004.
3. Dai, B., et al. 2011. Functional and molecular interactions between ERK and CHK2 in diffuse large B-cell lymphoma. Nat. Commun. 2: 402.
4. Chung, Y.M., et al. 2012. FOXO3 signalling links ATM to the p53 apoptotic pathway following DNA damage. Nat. Commun. 3: 1000.
5. Kumar, A., et al. 2014. Kaposi sarcoma herpes virus latency associated nuclear antigen protein release the G_2/M cell cycle blocks by modulating ATM/ATR mediated checkpoint pathway. PLoS ONE 9: e100228.
6. Ströbel, T., et al. 2017. Ape1 guides DNA repair pathway choice that is associated with drug tolerance in glioblastoma. Sci. Rep. 7: 9674.

RESEARCH USE

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