

CLK1/4 (K-19): sc-47958

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine (Ser/Thr) protein kinases. CLK1 (CDC-like kinase 1) and CLK4 (CDC-like kinase 4) are nuclear proteins that are members of the Ser/Thr protein kinase family. CLK1 and CLK4 catalyze the ATP-dependent phosphorylation of serine- and arginine-rich (SR) proteins within the spliceosomal complex and are thought to regulate the ability of SR proteins to control RNA splicing. Specifically, CLK1 may mediate the release of specific proteins from nuclear storage sites. Expression of CLK1 may be very low due to a premature stop codon in the mRNA, which leads to nonsense-mediated mRNA decay, while CLK4 is expressed in brain, liver, kidney, heart and muscle. CLK1 activity is positively regulated by phosphorylation on either tyrosine residues or serine/threonine residues. CLK1 activity is negatively regulated by steric constraints mediated by the N-terminal domain and also by phosphorylation on a subset of serine/threonine residues within the catalytic domain.

REFERENCES

1. Duncan, P.I., et al. 1997. *In vivo* regulation of alternative pre-mRNA splicing by the CLK1 protein kinase. *Mol. Cell. Biol.* 17: 5996-6001.
2. Duncan, P.I., et al. 1998. The CLK2 and CLK3 dual-specificity protein kinases regulate the intranuclear distribution of SR proteins and influence pre-mRNA splicing. *Exp. Cell Res.* 241: 300-308.
3. Moeslein, F.M., et al. 1999. The CLK family kinases, CLK1 and CLK2, phosphorylate and activate the tyrosine phosphatase, PTP1B. *J. Biol. Chem.* 274: 26697-26704.
4. Menegay, H.J., et al. 2000. Biochemical characterization and localization of the dual specificity kinase CLK1. *J. Cell Sci.* 113: 3241-3253.

CHROMOSOMAL LOCATION

Genetic locus: CLK4 (human) mapping to 5q35.3, CLK1 (human) mapping to 2q33.1; Clk4 (mouse) mapping to 11 B1.3, Clk1 (mouse) mapping to 1 C1.3.

SOURCE

CLK1/4 (K-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of CLK1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-47958 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

CLK1/4 (K-19) is recommended for detection of CLK4 and isoform Long of CLK1 of mouse 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

CLK1/4 (K-19) is also recommended for detection of CLK4 and isoform Long of CLK1 in additional species, including equine, canine, bovine, porcine and avian.

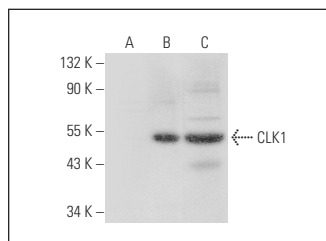
Molecular Weight of CLK1/4: 57 kDa.

Positive Controls: CLK1 (h): 293T Lysate: sc-113676 or mouse pancreas extract: sc-364244.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



CLK1/4 (K-19): sc-47958. Western blot analysis of CLK1 expression in non-transfected sc-117750 (A) and human CLK1 transfected: sc-113676 (B) whole cell lysates and mouse pancreas tissue extract (C).

RESEARCH USE

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

MONOS
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Try **CLK1/4 (A-4): sc-515307**, our highly recommended monoclonal alternative to CLK1/4 (K-19).