

CLK1/4 (A-4): sc-515307

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.

CHROMOSOMAL LOCATION

Genetic locus: CLK4 (human) mapping to 5q35.3, CLK1 (human) mapping to 2q33.1.

SOURCE

CLK1/4 (A-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 202-227 within an internal region of CLK1 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.

CLK1/4 (A-4) is available conjugated to agarose (sc-515307 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-515307 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515307 PE), fluorescein (sc-515307 FITC), Alexa Fluor® 488 (sc-515307 AF488), Alexa Fluor® 546 (sc-515307 AF546), Alexa Fluor® 594 (sc-515307 AF594) or Alexa Fluor® 647 (sc-515307 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515307 AF680) or Alexa Fluor® 790 (sc-515307 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-515307 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

CLK1/4 (A-4) is recommended for detection of CLK4 and CLK1 isoform long of human origin by Western Blotting (starting dilution 1:100, 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).

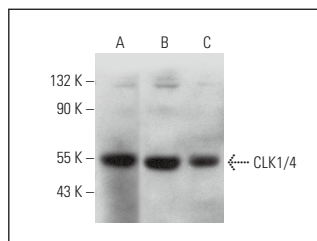
Molecular Weight of CLK1/4: 57 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, CLK1 (h): 293T Lysate: sc-113676 or Y79 cell lysate: sc-2240.

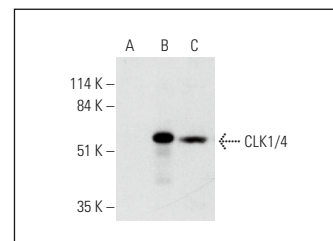
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BPHRP: sc-516102 or m-IgGκ BPHRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BPHRP-FITC: sc-516140 or m-IgGκ BPHRP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CLK1/4 (A-4): sc-515307. Western blot analysis of CLK1/4 expression in 293T (A), Y79 (B) and HeLa (C) whole cell lysates.



CLK1/4 (A-4): sc-515307. Western blot analysis of CLK1/4 expression in non-transfected 293T: sc-117752 (A), human CLK1 transfected 293T: sc-113676 (B) and Y79 (C) whole cell lysates.

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.

PROTOCOLS

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