

CLK3 (D-10): sc-365225

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. CLK3 (Cdc-like kinase 3), also known as PHCLK3, is a 638 amino acid nuclear and cytoplasmic protein that belongs to the Ser/Thr protein kinase family. Functioning as a dual-specificity kinase, CLK3 catalyzes the ATP-dependent phosphorylation of arginine- and serine-rich (SR) splicing factor proteins, thereby regulating both their function and their intranuclear distribution. Via its enzymatic activity, CLK3 is thought to be one of several members of a network of regulatory proteins that control RNA splicing events. Four isoforms of CLK3 exist due to alternative splicing.

REFERENCES

1. Becker, W., et al. 1996. CDNA cloning and characterization of rat CLK3, a LAMMER kinase predominately expressed in testis. *Biochim. Biophys. Acta* 1312: 63-67.
2. Duncan, P.L., 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. Menegay, H., et al. 1999. The dual specificity protein kinase CLK3 is abundantly expressed in mature mouse spermatozoa. *Exp. Cell Res.* 253: 463-473.

CHROMOSOMAL LOCATION

Genetic locus: CLK3 (human) mapping to 15q24.1; Clk3 (mouse) mapping to 9 B.

SOURCE

CLK3 (D-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 211-241 within an internal region of CLK3 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CLK3 (D-10) is available conjugated to agarose (sc-365225 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365225 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365225 PE), fluorescein (sc-365225 FITC), Alexa Fluor® 488 (sc-365225 AF488), Alexa Fluor® 546 (sc-365225 AF546), Alexa Fluor® 594 (sc-365225 AF594) or Alexa Fluor® 647 (sc-365225 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365225 AF680) or Alexa Fluor® 790 (sc-365225 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365225 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

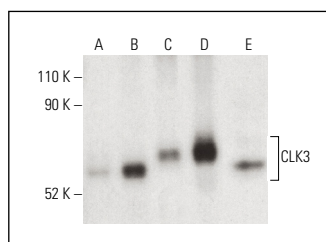
CLK3 (D-10) is recommended for detection of CLK3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CLK3 siRNA (h): sc-72925, CLK3 siRNA (m): sc-72926, CLK3 shRNA Plasmid (h): sc-72925-SH, CLK3 shRNA Plasmid (m): sc-72926-SH, CLK3 shRNA (h) Lentiviral Particles: sc-72925-V and CLK3 shRNA (m) Lentiviral Particles: sc-72926-V.

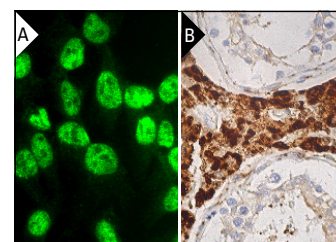
Molecular Weight of CLK3: 74 kDa.

Positive Controls: CLK3 (h): 293T Lysate: sc-114045, Jurkat whole cell lysate: sc-2204 or HeLa nuclear extract: sc-2120.

DATA



CLK3 (D-10): sc-365225. Western blot analysis of CLK3 expression in non-transfected 293T: sc-117752 (A), human CLK3 transfected 293T: sc-114045 (B), human CLK3 transfected 293T: sc-158385 (C), human CLK3 transfected 293T: sc-158386 (D) and Jurkat (E) whole cell lysates. Detection reagent used: m-IgG₁ BP-HRP: sc-525408.



CLK3 (D-10): sc-365225. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic staining of Leydig cells (B).

SELECT PRODUCT CITATIONS

1. Funnell, T., et al. 2017. CLK-dependent exon recognition and conjoined gene formation revealed with a novel small molecule inhibitor. *Nat. Commun.* 8: 7.
2. Zhou, Q., et al. 2020. Targeting CLK3 inhibits the progression of cholangiocarcinoma by reprogramming nucleotide metabolism. *J. Exp. Med.* 217: e20191779.
3. Shen, Y., et al. 2022. Methionine oxidation of CLK4 promotes the metabolic switch and redox homeostasis in esophageal carcinoma via inhibiting MITF selective autophagy. *Clin. Transl. Med.* 12: e719.

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.