

# 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.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. 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 IgG<sub>1</sub> 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<sup>®</sup> 488 (sc-365225 AF488), Alexa Fluor<sup>®</sup> 546 (sc-365225 AF546), Alexa Fluor<sup>®</sup> 594 (sc-365225 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-365225 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-365225 AF680) or Alexa Fluor<sup>®</sup> 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

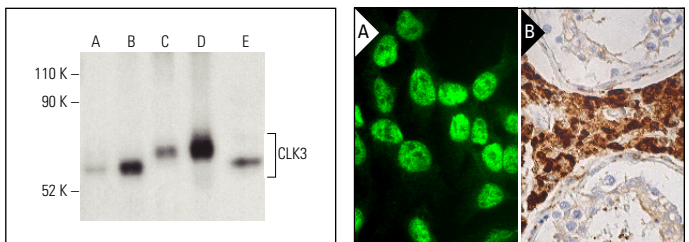
CLK3 (D-10) is recommended for detection of CLK3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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-IgG<sub>1</sub> 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.