

CDKL5 (D-12): sc-376314

BACKGROUND

Cell cycle progression is controlled in part by a family of cyclin proteins and cyclin-dependent kinases (Cdks). Cdk proteins work in concert with the cyclins to phosphorylate key substrates involved in each phase of cell cycle progression. Another family of proteins, Cdk inhibitors, also plays a role in regulating the cell cycle by binding to cyclin-Cdk complexes and modulating their activity. CDKL5 (cyclin-dependent kinase-like 5) is a 1,030 amino acid protein that belongs to the CMGC Ser/Thr protein kinase family. Expressed in brain, lung, kidney, prostate, ovary, placenta, pancreas and testis, CDKL5 is thought to play a role in cell cycle regulation. Defects in CDKL5 are a cause of several disorders, such as X-linked infantile spasm syndrome and Rett syndrome.

CHROMOSOMAL LOCATION

Genetic locus: CDKL5 (human) mapping to Xp22.13; Cdkl5 (mouse) mapping to X F4.

SOURCE

CDKL5 (D-12) is a mouse monoclonal antibody raised against amino acids 222-520 mapping within an internal region of CDKL5 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CDKL5 (D-12) is available conjugated to agarose (sc-376314 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376314 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376314 PE), fluorescein (sc-376314 FITC), Alexa Fluor® 488 (sc-376314 AF488), Alexa Fluor® 546 (sc-376314 AF546), Alexa Fluor® 594 (sc-376314 AF594) or Alexa Fluor® 647 (sc-376314 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376314 AF680) or Alexa Fluor® 790 (sc-376314 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

CDKL5 (D-12) is recommended for detection of CDKL5 of mouse, rat and 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).

Suitable for use as control antibody for CDKL5 siRNA (h): sc-72849, CDKL5 siRNA (m): sc-72850, CDKL5 shRNA Plasmid (h): sc-72849-SH, CDKL5 shRNA Plasmid (m): sc-72850-SH, CDKL5 shRNA (h) Lentiviral Particles: sc-72849-V and CDKL5 shRNA (m) Lentiviral Particles: sc-72850-V.

Molecular Weight of CDKL5: 116 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, IMR-32 cell lysate: sc-2409 or Neuro-2A whole cell lysate: sc-364185.

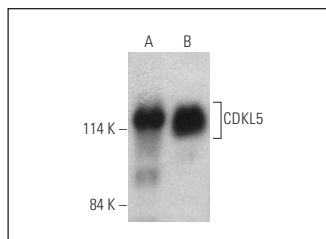
STORAGE

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

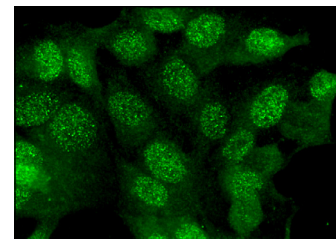
RESEARCH USE

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

DATA



CDKL5 (D-12) HRP: sc-376314 HRP. Direct western blot analysis of CDKL5 expression in Neuro-2A (A) and IMR-32 (B) whole cell lysates.



CDKL5 (D-12): sc-376314. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Tramarin, M., et al. 2018. The antidepressant tianeptine reverts synaptic AMPA receptor defects caused by deficiency of CDKL5. *Hum. Mol. Genet.* 27: 2052-2063.
2. Muñoz, I.M., et al. 2018. Phosphoproteomic screening identifies physiological substrates of the CDKL5 kinase. *EMBO J.* 37: e99559.
3. Fazzari, M., et al. 2019. Aminoglycoside drugs induce efficient read-through of CDKL5 nonsense mutations, slightly restoring its kinase activity. *RNA Biol.* 16: 1414-1423.
4. Balestra, D., et al. 2019. Splicing mutations impairing CDKL5 expression and activity can be efficiently rescued by U1snRNA-based therapy. *Int. J. Mol. Sci.* 20: 4130.
5. Barbiero, I., et al. 2020. Pregnenolone and pregnenolone-methyl-ether rescue neuronal defects caused by dysfunctional CLIP170 in a neuronal model of CDKL5 deficiency disorder. *Neuropharmacology* 164: 107897.
6. Trovò, L., et al. 2020. The green tea polyphenol epigallocatechin-3-gallate (EGCG) restores CDKL5-dependent synaptic defects *in vitro* and *in vivo*. *Neurobiol. Dis.* 138: 104791.
7. Colarusso, A., et al. 2022. Active human full-length CDKL5 produced in the Antarctic bacterium *Pseudoalteromonas haloplanktis* TAC125. *Microb. Cell Fact.* 21: 211.
8. De Rosa, R., et al. 2022. Loss of CDKL5 causes synaptic GABAergic defects that can be restored with the neuroactive steroid pregnenolone-methyl-ether. *Int. J. Mol. Sci.* 24: 68.
9. Sampedro-Castañeda, M., et al. 2023. Epilepsy-linked kinase CDKL5 phosphorylates voltage-gated calcium channel Cav2.3, altering inactivation kinetics and neuronal excitability. *Nat. Commun.* 14: 7830.

PROTOCOLS

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

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