SANTA CRUZ BIOTECHNOLOGY, INC.

Cdk5 (J-3): sc-6247

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 cell cycle by binding to cyclin-Cdk complexes and modulating their activity. Several Cdk proteins have been identified, including Cdk2-Cdk8, PCTAIRE-1–3, PITALRE and PITSLRE. Cdk5 is thought to be involved in the G_1-S transition of the cell cycle and is highly expressed in mature neurons. Activity of Cdk5 increases significantly during neuronal differentiation. Cdk5 has been postulated to be a neurofilament or Tau protein kinase, based on its ability to phosphorylate these proteins *in vitro*.

CHROMOSOMAL LOCATION

Genetic locus: CDK5 (human) mapping to 7q36.1; Cdk5 (mouse) mapping to 5 A3.

SOURCE

Cdk5 (J-3) is a mouse monoclonal antibody raised against amino acids 1-291 representing full length Cdk5 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.

Cdk5 (J-3) is available conjugated to agarose (sc-6247 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-6247 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-6247 PE), fluorescein (sc-6247 FITC), Alexa Fluor® 488 (sc-6247 AF488), Alexa Fluor® 546 (sc-6247 AF546), Alexa Fluor® 594 (sc-6247 AF594) or Alexa Fluor® 647 (sc-6247 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-6247 AF680) or Alexa Fluor® 790 (sc-6247 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, Cdk5 (J-3) is available conjugated to TRITC (sc-6247 TRITC, 200 µg/ml), for IF, IHC(P) and FCM.

APPLICATIONS

Cdk5 (J-3) is recommended for detection of Cdk5 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Cdk5 siRNA (h): sc-29263, Cdk5 siRNA (m): sc-35047, Cdk5 shRNA Plasmid (h): sc-29263-SH, Cdk5 shRNA Plasmid (m): sc-35047-SH, Cdk5 shRNA (h) Lentiviral Particles: sc-29263-V and Cdk5 shRNA (m) Lentiviral Particles: sc-35047-V.

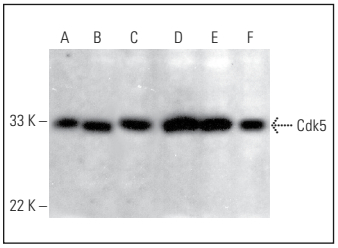
Molecular Weight of Cdk5: 35 kDa.

Positive Controls: MM-142 nuclear extract: sc-2139, RAW 264.7 whole cell lysate: sc-2211 or Jurkat whole cell lysate: sc-2204.

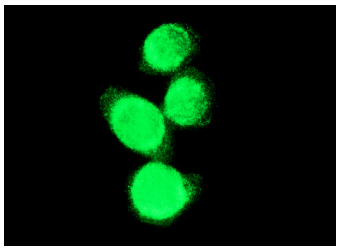
STORAGE

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

DATA



Cdk5 (J-3) HRP: sc-6247 HRP. Direct western blot analysis of Cdk5 expression in MM-142 (**A**) and WEHI-231 (**B**) nuclear extracts and RAW 264.7 (**C**), Jurkat (**D**), NAMALWA (**E**) and PC-12 (**F**) whole cell lysates.



Cdk5 (J-3): sc-6247. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Soldner, F., et al. 1999. MPP^+ inhibits proliferation of PC12 cells by a $p21^{WAF1/Cip1}$-dependent pathway and induces cell death in cells lacking $p21^{WAF1/Cip1}$. Exp. Cell Res. 250: 75-85.
2. Tripathi, B.K., et al. 2014. Cdk5 is a major regulator of the tumor suppressor DLC1. J. Cell Biol. 207: 627-642.
3. Xie, Q., et al. 2015. Mitochondrial control by DRP1 in brain tumor initiating cells. Nat. Neurosci. 18: 501-510.
4. Amin, N.D., et al. 2016. The interaction of Munc 18 (p67) with the p10 domain of p35 protects *in vivo* Cdk5/p35 activity from inhibition by TFP5, a peptide derived from p35. Mol. Biol. Cell 27: 3221-3232.
5. Robin, G., et al. 2017. Calcium dysregulation and Cdk5-Atm pathway involved in a mouse model of fragile X-associated tremor/ataxia syndrome. Hum. Mol. Genet. 26: 2649-2666.
6. Tuo, Q.Z., et al. 2018. Zinc induces Cdk5 activation and neuronal death through Cdk5-Tyr15 phosphorylation in ischemic stroke. Cell Death Dis. 9: 870.
7. Faraco, G., et al. 2019. Dietary salt promotes cognitive impairment through Tau phosphorylation. Nature 574: 686-690.
8. Rao, S.S., et al. 2020. The iron chelator deferiprone improves the phenotype in a mouse model of tauopathy. J. Alzheimers Dis. 77: 753-771.
9. Chen, B., et al. 2021. DYRK1A negatively regulates CDK5-SOX2 pathway and self-renewal of glioblastoma stem cells. Int. J. Mol. Sci. 22: 4011.
10. Lopez-Fabuel, I., et al. 2022. Aberrant upregulation of the glycolytic enzyme PFKFB3 in CLN7 neuronal ceroid lipofuscinosis. Nat. Commun. 13: 536.

RESEARCH USE

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