SANTA CRUZ BIOTECHNOLOGY, INC.

Doublecortin (E-6): sc-271390

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Lissencephaly (smooth brain) is an abnormality of brain development characterized by incomplete neuronal migration and a smooth cerebral surface, resulting in severe mental retardation. Genetic analysis identified two proteins that are mutated in some cases of lissencephaly, designated lissencephaly-1 protein (LIS1) and Doublecortin. LIS1 shows sequence homology to β-subunits of heterotrimeric G proteins. Doublecortin contains a consensus Abl phosphorylation site, and it has some sequence homology to a predicted kinase protein. Both proteins are highly expressed in developing brain, suggesting that they may be involved in a signal transduction pathway that is crucial to brain development.

CHROMOSOMAL LOCATION

Genetic locus: DCX (human) mapping to Xq23; Dcx (mouse) mapping to X F2.

SOURCE

Doublecortin (E-6) is a mouse monoclonal antibody raised against amino acids 81-365 mapping at the C-terminus of Doublecortin of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Doublecortin (E-6) is available conjugated to agarose (sc-271390 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271390 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271390 PE), fluorescein (sc-271390 FITC), Alexa Fluor® 488 (sc-271390 AF488), Alexa Fluor® 546 (sc-271390 AF546), Alexa Fluor® 594 (sc-271390 AF594) or Alexa Fluor® 647 (sc-271390 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271390 AF680) or Alexa Fluor® 790 (sc-271390 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Doublecortin (E-6) is recommended for detection of Doublecortin 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), 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 Doublecortin siRNA (h): sc-35214, Doublecortin siRNA (m): sc-35215, Doublecortin shRNA Plasmid (h): sc-35214-SH, Doublecortin shRNA Plasmid (m): sc-35215-SH, Doublecortin shRNA (h) Lentiviral Particles: sc-35214-V and Doublecortin shRNA (m) Lentiviral Particles: sc-35215-V.

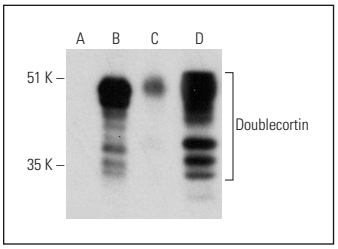
Molecular Weight of Doublecortin: 40 kDa.

Positive Controls: Doublecortin (h): 293T Lysate: sc-114231, SK-N-SH cell lysate: sc-2410 or mouse embryo extract: sc-364239.

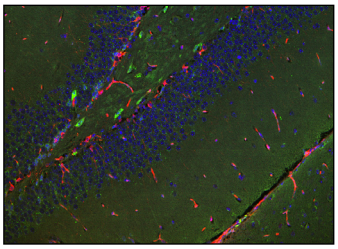
STORAGE

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

DATA



Doublecortin (E-6) HRP: sc-271390 HRP. Direct western blot analysis of Doublecortin expression in non-transfected: sc-117752 (**A**) and human Doublecortin transfected: sc-114231 (**B**) 293T whole cell lysates and mouse embryo (**C**) and mouse postnatal brain (**D**) tissue extracts.



Doublecortin (E-6): sc-271390. Mouse hippocampus (formalin fixed, paraffin) stained with sc-271390; 1:50 overnight with AlexaFluor-568 (red). Green-active caspase-3, Blue-DAPI. Kindly provided by Dr. Svetlana Zonis, Cedars-Sinai Medical Center.

SELECT PRODUCT CITATIONS

1. Sirerol-Piquer, M., et al. 2011. GSK3β overexpression induces neuronal death and a depletion of the neurogenic niches in the dentate gyrus. Hippocampus 21: 910-922.
2. García, C.P., et al. 2016. Human pluripotent stem cells and derived neuroprogenitors display differential degrees of susceptibility to BH3 mimetics ABT-263, WEHI-539 and ABT-199. PLoS ONE 11: e0152607.
3. Agnihotri, S.K., et al. 2017. Loss of PINK1 leads to metabolic deficits in adult neural stem cells and impedes differentiation of newborn neurons in the mouse hippocampus. FASEB J. 31: 2839-2853.
4. Zonis, S., et al. 2018. Inflammation-induced Gro1 triggers senescence in neuronal progenitors: effects of estradiol. J. Neuroinflammation 15: 260.
5. Odaira, T., et al. 2019. Mechanisms underpinning AMP-activated protein kinase-related effects on behavior and hippocampal neurogenesis in an animal model of depression. Neuropharmacology 150: 121-133.
6. Liu, R.X., et al. 2020. No DCX-positive neurogenesis in the cerebral cortex of the adult primate. Neural Regen. Res. 15: 1290-1299.
7. Wulaer, B., et al. 2021. Shati/Nat8l deficiency disrupts adult neurogenesis and causes attentional impairment through dopaminergic neuronal dysfunction in the dentate gyrus. J. Neurochem. 157: 642-655.
8. Melliou, S., et al. 2022. Regionally defined proteomic profiles of human cerebral tissue and organoids reveal conserved molecular modules of neurodevelopment. Cell Rep. 39: 110846.
9. Lau, K.S.K., et al. 2023. A novel *ex vivo* assay to define charge-balanced electrical stimulation parameters for neural precursor cell activation *in vivo*. Brain Res. 1804: 148263.

RESEARCH USE

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