SANTA CRUZ BIOTECHNOLOGY, INC.

LIS1 (G-3): sc-17817

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.

REFERENCES

1. Reiner, O., et al. 1993. Isolation of a Miller-Dieker lissencephaly gene containing G protein β-subunit-like repeats. Nature 364: 717-721.
2. Garcia-Higuera, I., et al. 1996. Folding of proteins with WD-repeats: comparison of six members of the WD-repeat superfamily to the G protein β-subunit. Biochemistry 35: 13985-13994.
3. Albrecht, U., et al. 1996. Platelet-activating factor acetylhydrolase expression and activity suggest a link between neuronal migration and platelet-activating factor. Dev. Biol. 180: 579-593.
4. Walsh, C.A. 1998. LISsen up! Nat. Genet. 19: 307-308.
5. des Portes, V., et al. 1998. A novel CNS gene required for neuronal migration and involved in X-linked subcortical laminar heterotopia and lissencephaly syndrome. Cell 92: 51-61.
6. Gleeson, J.G., et al. 1998. Doublecortin, a brain-specific gene mutated in human X-linked lissencephaly and double cortex syndrome, encodes a putative signaling protein. Cell 92: 63-72.
7. Shu, T., et al. 2004. NDEL1 operates in a common pathway with LIS1 and cytoplasmic Dynein to regulate cortical neuronal positioning. Neuron 44: 263-277.

CHROMOSOMAL LOCATION

Genetic locus: PAFAH1B1 (human) mapping to 17p13.3; Pafah1b1 (mouse) mapping to 11 B5.

SOURCE

LIS1 (G-3) is a mouse monoclonal antibody raised against amino acids 1-300 of LIS1 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.

STORAGE

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

APPLICATIONS

LIS1 (G-3) is recommended for detection of LIS1 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for LIS1 siRNA (h): sc-35814, LIS1 siRNA (m): sc-35815, LIS1 shRNA Plasmid (h): sc-35814-SH, LIS1 shRNA Plasmid (m): sc-35815-SH, LIS1 shRNA (h) Lentiviral Particles: sc-35814-V and LIS1 shRNA (m) Lentiviral Particles: sc-35815-V.

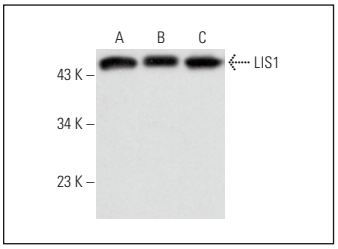
Molecular Weight of LIS1: 47 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, C6 whole cell lysate: sc-364373 or BC_3H1 cell lysate: sc-2299.

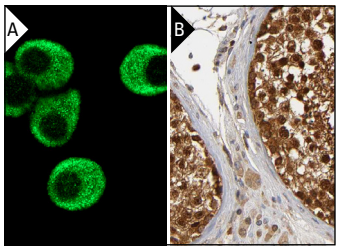
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



LIS1 (G-3): sc-17817. Western blot analysis of LIS1 expression in HeLa (**A**), C6 (**B**) and BC_3H1 (**C**) whole cell lysates.



LIS1 (G-3): sc-17817. Immunofluorescence staining of methanol-fixed KNRK cells showing cytoplasmic staining (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear staining of cells in ductus seminiferus and cytoplasmic staining in Leydig cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (**B**).

SELECT PRODUCT CITATIONS

1. Drusenheimer, N., et al. 2011. Overexpression of LIS1 in different stages of spermatogenesis does not result in an aberrant phenotype. Cytogenet. Genome Res. 134: 269-282.

RESEARCH USE

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