SANTA CRUZ BIOTECHNOLOGY, INC.

LIS1 (1-300): sc-4510 WB

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., Carrozzo, R., Shen, Y., Wehnert, M., Faustinella, F., Dobyns, W.B., Caskey, C.T., and Ledbetter, D.H. 1993. Isolation of a Miller-Dieker lissencephaly gene containing G protein β-subunit-like repeats. Nature 364: 717-721.
2. Walsh, C.A. 1998. LISsen up! Nat. Genet. 19: 307-308.
3. Garcia-Higuera, I., Fenoglio, J., Li, Y., Lewis, C., Panchenko, M.P., Reiner, O., Smith, T.F., and Neer, E.J. 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.
4. Albrecht, U., Abu-Issa, R., Ratz, B., Hattori, M., Aoki, J., Arai, H., Inoue, K., and Eichele, G. 1996. Platelet-activating factor acetylhydrolase expression and activity suggest a link between neuronal migration and platelet-activating factor. Dev. Biol. 180: 579-593.
5. des Portes, V., Pinard, J.M., Billuart, P., Vinet, M.C., Koulakoff, A., Carrie, A., Gelot, A., Dupuis, E., Motte, J., Berwald-Netter, Y., Catala, M., Kahn, A., Beldjord, C., and Chelly, J. 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., Allen, K.M., Fox, J.W., Lamperti, E.D., Berkovic, S., Scheffer, I., Cooper, E.C., Dobyns, W.B., Minnerath, S.R., Ross, M.E., and Walsh, C.A. 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., Ayala, R., Nguyen, M.D., Xie , Z., Gleeson, J.G., Aand Tsai, L.H. 2004. Ndel1 operates in a common pathway with LIS1 and cytoplasmic dynein to regulate cortical neuronal positioning. Neuron 44: 263-277.
8. Jimenez-Mateos, E.M., Wandosell, F., Reiner, O., Avila, J., and Gonzalez-Billault C. 2005. Binding of microtubule-associated protein 1B to LIS1 affects the interaction between dynein and LIS1. Biochem. J. 389 (Part 2): 333-341
9. Rehberg, M., Kleylein-Sohn, J., Faix, J., Ho, T.H., Schulz, I., and Graf, R. 2005. Dictyostelium LIS1 Is a Centrosomal Protein Required for Microtubule/Cell Cortex Interactions, Nucleus/Centrosome Linkage, and Actin Dynamics. Mol. Biol. Cell Jun; 16: 2759-2771

SOURCE

LIS1 (1-300) is expressed in *E. coli* as a 60 kDa tagged fusion protein corresponding to amino acids 1-300 of LIS1 (lissencephaly 1) of human origin.

PRODUCT

LIS1 (1-300) is purified from bacterial lysates (>98%) by column chromatography; supplied as 10 µg protein in 0.1 ml SDS-PAGE loading buffer.

APPLICATIONS

LIS1 (1-300) is suitable as a Western blotting control for sc-15319 and sc-17817.

STORAGE

Store at -20° C; stable for one year from the date of shipment.

RESEARCH USE

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