

DYNLL2 (h): 293 Lysate: sc-111260

BACKGROUND

Dyneins are multisubunit, high molecular weight ATPases that interact with microtubules to generate force by converting the chemical energy of ATP into the mechanical energy of movement. Cytoplasmic or axonemal Dynein heavy, intermediate, light and light-intermediate chains are all components of minus end-directed motors; the complex that transports cellular cargos towards the central region of the cell. The highly conserved DYNLL proteins were originally identified as light chains for the microtubule-based motor protein, Dynein. In mammals, there are two closely related isoforms expressed, DYNLL1 and DYNLL2, which share 93% sequence identity at the protein level. DYNLL1 (Dynein light chain 1), also designated DLC8 or PIN (protein inhibitor of neuronal nitric oxide synthase), has been identified as a protein that interacts with NOS1, resulting in NOS1 inhibition. Dimerization is required for NOS1 activity and DYNLL1 has been shown to destabilize the NOS1 dimer. Nitric oxide may be involved in several processes such as apoptosis, synaptogenesis and neuronal development, thus DYNLL1 is implicated in these processes as well. DYNLL1 is a ubiquitously expressed protein that exhibits high expression in testis and moderate expression in brain. DYNLL2 (Dynein light chain 2) is subject to a unique alternative splicing event which is implicated in Myosin Va binding specificity.

REFERENCES

1. Dick, T., Ray, K., Salz, H.K. and Chia, W. 1996. Cytoplasmic Dynein (ddlc1) mutations cause morphogenetic defects and apoptotic cell death in *Drosophila melanogaster*. *Mol. Cell. Biol.* 16: 1966-1977.
2. Jaffrey, S.R. and Snyder, S.H. 1996. PIN: an associated protein inhibitor of neuronal nitric oxide synthase. *Science* 274: 774-777.
3. Fuhrmann, J.C., Kins, S., Rostaing, P., El Far, O., Kirsch, J., Sheng, M., Triller, A., Betz, H. and Kneussel, M. 2002. Gephyrin interacts with Dynein light chains 1 and 2, components of motor protein complexes. *J. Neurosci.* 22: 5393-5402.
4. Asai, D.J. and Wilkes, D.E. 2004. The Dynein heavy chain family. *J. Eukaryot. Microbiol.* 51: 23-29.
5. Mallik, R., Carter, B.C., Lex, S.A., King, S.J. and Gross, S.P. 2004. Cytoplasmic Dynein functions as a gear in response to load. *Nature* 427: 649-652.
6. Lee, W.L., Kaiser, M.A. and Cooper, J.A. 2005. The offloading model for Dynein function: differential function of motor subunits. *J. Cell Biol.* 168: 201-207.
7. Wagner, W., Fodor, E., Ginsburg, A. and Hammer, J.A. 2006. The binding of DYNLL2 to Myosin Va requires alternatively spliced exon B and stabilizes a portion of the Myosin's coiled-coil domain. *Biochemistry* 45: 11564-11577.
8. Pfister, K.K., Shah, P.R., Hummerich, H., Russ, A., Cotton, J., Annuar, A.A., King, S.M. and Fisher, E.M. 2006. Genetic analysis of the cytoplasmic Dynein subunit families. *PLoS Genet.* 2: e1.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

CHROMOSOMAL LOCATION

Genetic locus: DYNLL2 (human) mapping to 17q22.

PRODUCT

DYNLL2 (h): 293 Lysate represents a lysate of human DYNLL2 transfected 293 cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

DYNLL2 (h): 293 Lysate is suitable as a Western Blotting positive control for human reactive DYNLL2 antibodies. Recommended use: 10-20 µl per lane.

Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

RESEARCH USE

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

PROTOCOLS

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