SANTA CRUZ BIOTECHNOLOGY, INC.

Sad-1 (cN-17): sc-15657

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

When a synapse is formed in *C. elegans*, presynaptic axon outgrowth is terminated, presynaptic clusters of vesicles are associated with active zone proteins and active zones are aligned with postsynaptic neurotransmitter receptors. A novel serine/threonine kinase, Sad-1, regulates several aspects of presynaptic differentiation. The Sad-1 mutant affects the presynaptic development of motor neurons as well as ASI neurons, which are a bilaterally symmetric pair of thermosensory neurons that control entry into the dauer larva stage. Sad-1, a 914 amino acid protein, is expressed in the nervous system and localizes to synapse-rich regions of the axons. Sad-1 is related to PAR-1, a kinase that regulates cell polarity during asymmetric cell division. Overexpression of Sad-1 causes mislocalization of vesicle proteins to dendrites, suggesting that Sad-1 plays a role in axonal-dentritic polarity and synaptic development. In sad-1 mutants, presynaptic vesicle clusters in sensory neurons and motor neurons are diffuse and disorganized. The sensory axons also fail to terminate in Sad-1 mutants, whereas Sad-1 overexpression causes sensory axons to terminate prematurely.

REFERENCES

1. Bargmann, C.I. and Horvitz, H.R. 1991. Control of larval development by chemosensory neurons in *Caenorhabditis elegans*. Science 251: 1243-1246.
2. Crump, J.G., Zhen, M., Jin, Y. and Bargmann, C.I. 2001. The SAD-1 kinase regulates presynaptic vesicle clustering and axon termination. Neuron 29: 115-129.
3. Wan, H.I., DiAntonio, A., Fetter, R.D., Bergstrom, K., Strauss, R. and Goodman, C.S. 2000. Highwire regulates synaptic growth in *Drosophila*. Neuron 26: 313-329.
4. Zhen, M., Xun, H., Bamber, B. and Jin, Y. 2000. Regulation of presynaptic terminal organization by *C. elegans* RPM-1, a putative GTP-GDP exchanger with a Ring-H2 finger domain. Neuron 26: 331-343.
5. Schaefer, A.M., Hadwiger, G.D. and Nonet, M.L. 2000. rpm-1, a conserved neuronal gene that regulates targeting and synaptogenesis in *C. elegans*. Neuron 26: 345-356.

SOURCE

Sad-1 (cN-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Sad-1 of *Caenorhabditis elegans* origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-15657 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

Sad-1 (cN-17) is recommended for detection of Sad-1 of *Caenorhabditis elegans* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

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