



EAT-4 (cC-20): sc-15638

BACKGROUND

The *Caenorhabditis elegans* gene *eat-4* affects multiple glutamatergic neurotransmission pathways. The *eat-4* gene encodes a protein, which is similar in sequence to a mammalian brain-specific sodium-dependent inorganic phosphate cotransporter I (BNPI). Like BNPI, EAT-4 is expressed in a specific subset of neurons and is implicated in glutamatergic transmission. Loss-of-function mutations in *eat-4* cause a defect in glutamatergic chemical transmission but have little effect on other functions of neurons, which indicates that the import of phosphate ions into glutamatergic neurons through EAT-4 is required specifically for glutamatergic neurotransmission. In addition, *eat-4* mutants are partially neuroprotective, showing that endogenous signaling modulates the severity of neurotoxic effects of Gas, which induces neurodegeneration. *eat-4* mutant behavior also suggests that neurotransmitter regulation may play a role in habituation and/or dishabituation.

REFERENCES

1. Bellocchio, E.E., Hu, H., Pohorille, A., Chan, J., Pickel, V.M., and Edwards, R.H. 1998. The localization of the brain-specific inorganic phosphate transporter suggests a specific presynaptic role in glutamatergic transmission. *J. Neurosci.* 18: 8648-8659.
2. Berger, A.J., Hart, A.C., and Kaplan, J.M. 1998. Gas-induced neurodegeneration in *Caenorhabditis elegans*. *J. Neurosci.* 18: 2871-2880.
3. Rand, J.B., Duerr, J.S., and Frisby, D.L. 2000. Neurogenetics of vesicular transporters in *C. elegans*. *FASEB J.* 14: 2414-2422.
4. Lee, R.Y., Sawin, E.R., Chalfie, M., Horvitz, H.R., and Avery, L. 1999. EAT-4, a homolog of a mammalian sodium-dependent inorganic phosphate cotransporter, is necessary for glutamatergic neurotransmission in *Caenorhabditis elegans*. *J. Neurosci.* 19: 159-167.
5. Rankin, C.H. and Wicks, S.R. 2000. Mutations of the *Caenorhabditis elegans* brain-specific inorganic phosphate transporter EAT-4 affect habituation of the TAP-withdrawal response without affecting the response itself. *J. Neurosci.* 20: 4337-4344.

SOURCE

EAT-4 (cC-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of EAT-4 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-15638 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

EAT-4 (cC-20) is recommended for detection of EAT-4 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.