SANTA CRUZ BIOTECHNOLOGY, INC.

MEK-2 (cC-20): sc-9260

BACKGROUND

Cell proliferation and development are carefully controlled in *C. elegans*, with each cell following a nearly invariant pattern of differentiation. Vulval development in particular provides a useful model for studying how cell fate is determined. In addition to cell signaling pathways such as Notch and Ras pathways, the establishment of cell polarity and the asymmetric distribution of certain receptors are also critical for proper cell fate determination. In *C. elegans*, activated Ras initiates a cascade of sequential phosphorylation events, including the protein kinases Raf, MEK, and MAP kinase. The LET-60 Ras-mediated signal transduction pathway controls vulval induction. LIN-45, a member of the Raf family of serine/threonine kinases, and LIN-31, an HNF-3 homologe, act downstream of the Ras protein as necessary components for vulval differentiation. LIN-1 contains an ETS domain and is thought to be a substrate for the ERK subfamily of MAP kinases. The *C. elegans* proteins MEK-2, a MAP kinase kinase, and SUR-2 also function in the LET-60 Ras-mediated vulval induction.

REFERENCES

1. Han, M., Golden, A., Han, Y. and Sternberg, P.W. 1993. *C. elegans* LIN-45 RAF gene participates in LET-60 Ras-stimulated vulval differentiation. Nature 363: 133-140.
2. Eisenmann, D.M. and Kim, S.K. 1994. Signal transduction and cell fate specification during *Caenorhabditis elegans* vulval development. Curr. Opin. Genet. Dev. 4: 508-516.
3. Wu, Y., Han, M. and Guan, K.L. 1995. MEK-2, a *Caenorhabditis elegans* MAP kinase kinase, functions in Ras-mediated vulval induction and other developmental events. Genes Dev. 9: 742-755.
4. Singh, N. and Han, M. 1995. SUR-2, a novel gene, functions late in the LET-60 Ras-mediated signaling pathway during *Caenorhabditis elegans* vulval induction. Genes Dev. 9: 2251-2265.
5. Sundaram, M. and Han, M. 1996. Control and integration of cell signaling pathways during *C. elegans* vulval development. Bioessays 18: 473-480.
6. Sommer, R.J. and Sternberg, P.W. 1996. Evolution of nematode vulval fate patterning. Dev. Biol. 173: 396-407.
7. Kornfeld, K. 1997. Vulval development in *Caenorhabditis elegans*. Trends Genet. 13: 55-61.
8. Jacobs, D., Beitel, G.J., Clark, S.G., Horvitz, H.R. and Kornfeld, K. 1998. Gain-of-function mutations in the *Caenorhabditis elegans* LIN-1 ETS gene identify a C-terminal regulatory domain phosphorylated by ERK MAP kinase. Genetics 149: 1809-1822.

SOURCE

MEK-2 (cC-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of MEK-2 of *C. elegans* origin.

STORAGE

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

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-9260 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MEK-2 (cC-20) is recommended for detection of MEK-2 of *Caenorhabditis elegans* 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

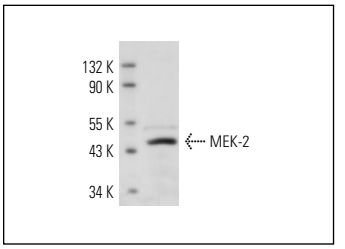
Molecular Weight of MEK-2: 47 kDa.

Positive Controls: *C. elegans* extract.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



MEK-2 (cC-20): sc-9260. Western blot analysis of MEK-2 expression in *C. elegans* extract.

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.