

POP-1 (ce-300): sc-33740

BACKGROUND

In *C. elegans* embryogenesis, POP-1 is essential for the specification of the blastomere, where it functions to link anterior-posterior cell divisions with cell fate decisions. Differences in POP-1 expression between anterior and posterior cells suggest that POP-1 aids in determining the polarity of the blastomere. The β -catenin homolog WRM-1 downregulates levels of POP-1 in the posterior daughter of the EMS blastomere. POP-1 and BAR form a bipartite transcription factor that activates expression of Wnt target genes associated with controlling cell polarization and cell migration. A polarizing signal induces endoderm production by the 4 cell stage blastomere. The genes *mom-1* through *mom-5* are required for the EMS to produce endoderm. The genes *mom-1* through *mom-3* are required in the signaling cell, P2, while *mom-4* is required in EMS. MOM-4 is expressed as a MAP kinase kinase kinase-related protein that stimulates the WRM-1/LIT-1-dependent phosphorylation of POP-1. Along with WRM-1, the MOM-4 protein down-regulates the HMG-domain-containing repressor POP-1.

REFERENCES

1. Lin, R., Thompson, S. and Priess, J.R. 1995. POP-1 encodes an HMG box protein required for the specification of a mesoderm precursor in early *C. elegans* embryos. *Cell* 83: 599-609.
2. Thorpe, C.J., Schlesinger, A., Carter, J.C. and Bowerman, B. 1997. Wnt signaling polarizes an early *C. elegans* blastomere to distinguish endoderm from mesoderm. *Cell* 90: 695-705.
3. Lin, R., Hill, R.J. and Priess, J.R. 1998. POP-1 and anterior-posterior fate decisions in *C. elegans* embryos. *Cell* 92: 229-239.
4. Shin, T.H., Yasuda, J., Rocheleau, C.E., Lin, R., Soto, M., Bei, Y., Davis, R.J. and Mello, C.C. 1999. MOM-4, a MAP kinase kinase kinase-related protein, activates WRM-1/LIT-1 kinase to transduce anterior/posterior polarity signals in *C. elegans*. *Mol. Cell* 4: 275-280.
5. Meneghini, M.D., Ishitani, T., Carter, J.C., Hisamoto, N., Ninomiya-Tsuji, J., Thorpe, C.J., Hamill, D.R., Matsumoto, K. and Bowerman, B. 1999. MAP kinase and Wnt pathways converge to downregulate an HMG-domain repressor in *Caenorhabditis elegans*. *Nature* 399: 793-797.
6. Korswagen, H.C., Herman, M.A. and Clevers, H.C. 2000. Distinct β -catenins mediate adhesion and signalling functions in *C. elegans*. *Nature* 406: 527-532.
7. Herman, M. 2001. *C. elegans* POP-1/TCF functions in a canonical Wnt pathway that controls cell migration and in a noncanonical Wnt pathway that controls cell polarity. *Development* 128: 581-590.

SOURCE

POP-1 (ce-300) is a rabbit polyclonal antibody raised against amino acids 139-438 mapping at the C-terminus of POP-1 of *C. elegans* origin.

PRODUCT

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

APPLICATIONS

POP-1 (ce-300) is recommended for detection of POP-1 of *Caenorhabditis elegans* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Pasco, M.Y., Catoire, H., Parker, J.A., Brais, B., Rouleau, G.A. and Néri, C. 2010. Cross-talk between canonical Wnt signaling and the sirtuin-FoxO longevity pathway to protect against muscular pathology induced by mutant PABPN1 expression in *C. elegans*. *Neurobiol. Dis.* 38: 425-433.

STORAGE

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

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.