

DAF-16 (ce-300): sc-33738

BACKGROUND

Several proteins involved in regulating the aging process in *C. elegans* have been identified. DAF-2, DAF-16 and AGE-1 (also known as DAF-23) regulate lifespan via an Insulin-signaling pathway. In specific, decreases in DAF-2 signaling induce metabolic and developmental changes, as in mammalian metabolic control by the Insulin receptor. DAF-16 encodes a member of the hepatocyte nuclear factor 3 (HNF-3)/forkhead family of transcriptional regulators. In humans HNF-3 activity is antagonized by Insulin, causing the down regulation of developmental genes, raising the possibility that aspects of the DAF-16 regulatory system have been conserved. The gene AGE-1 encodes a homolog of mammalian phosphatidylinositol-3-OH kinase (PI(3)K) catalytic subunits and is required for non-dauer development and normal senescence. CLK-1, a homolog of the yeast COQ7/CAT5 protein, is thought to exert its effects on longevity via the synthesis of ubiquinone, an essential component of electron transport.

REFERENCES

1. Wilson, R., et al. 1994. 2.2 Mb of contiguous nucleotide sequence from chromosome III of *C. elegans*. *Nature* 368: 32-38.
2. Morris, J.Z., et al. 1996. A phosphatidylinositol-3-OH kinase family member regulating longevity and diapause in *Caenorhabditis elegans*. *Nature* 382: 536-539.
3. Ewbank, J.J., et al. 1997. Structural and functional conservation of the *Caenorhabditis elegans* timing gene CLK-1. *Science* 275: 980-983.
4. Kimura, K.D., et al. 1997. DAF-2, an Insulin receptor-like gene that regulates longevity and diapause in *Caenorhabditis elegans*. *Science* 277: 942-946.
5. Lin, K., et al. 1997. DAF-16: An HNF-3/ forkhead family member that can function to double the life-span of *Caenorhabditis elegans*. *Science* 278: 1319-1322.
6. Moeslein, F.M., et al. 1999. The CLK family kinases, CLK-1 and CLK-2, phosphorylate and activate the tyrosine phosphatase, PTP-1B. *J. Biol. Chem.* 274: 26697-26704.
7. Vajo, Z., et al. 1999. Conservation of the *Caenorhabditis elegans* timing gene CLK-1 from yeast to human: a gene required for ubiquinone biosynthesis with potential implications for aging. *Mamm. Genome* 10: 1000-1004.

SOURCE

DAF-16 (ce-300) is a rabbit polyclonal antibody raised against amino acids 211-510 mapping at the C-terminus of DAF-16 of *C. elegans* origin.

PRODUCT

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

STORAGE

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

APPLICATIONS

DAF-16 (ce-300) is recommended for detection of DAF-16 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).

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. Tohyama, D., et al. 2008. Inhibition of a eukaryotic initiation factor (eIF2Bδ/F11A3.2) during adulthood extends lifespan in *Caenorhabditis elegans*. *FASEB J.* 22: 4327-4337.
2. Zhang, M., et al. 2009. Role of CBP and SATB-1 in aging, dietary restriction, and Insulin-like signaling. *PLoS Biol.* 7: e1000245.
3. Exil, V.J., et al. 2010. Stressed-induced TMEM135 protein is part of a conserved genetic network involved in fat storage and longevity regulation in *Caenorhabditis elegans*. *PLoS ONE* 5: e14228.
4. Lee, J., et al. 2010. Regulation of Dauer formation by O-GlcNAcylation in *Caenorhabditis elegans*. *J. Biol. Chem.* 285: 2930-2939.

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.