SANTA CRUZ BIOTECHNOLOGY, INC.

GPA-16 (cF-15): sc-32688

BACKGROUND

Guanine nucleotide-binding protein α-16 subunit, or GPA-16, is an α subunit of a heterotrimeric G protein complex that is involved in asymmetric cell division in *C. elegans*. Similar to GOA-1, GPA-16 interacts with receptor independent G protein activators GPR-1 and GPR-2 in its GDP bound form, as well as with the protein RIC-8, to assist in spindle fiber positioning. In addition, the G_α GPA-16 and GOA-1 may contribute to the generation of pulling forces necessary for cell division in *C. elegans* embryos. Unlike GOA-1, GPA-16 is dependent upon RIC-8 for cortical localization. Further, RIC-8 does not act as a guanine nucleotide exchange factor (GEF) for GPA-16 as it does with GOA-1. GPA-16 is localized primarily at the cell cortex in *C. elegans* embryos in the one-cell stage. Mutations in the gene coding for GPA-16 leads to a randomization of left-right handedness, suggesting a role of GPA-16 in the creation of left-right asymmetry in embryos.

REFERENCES

1. Gotta, M., et al. 2001. Distinct roles for G_α and $G_{\beta\gamma}$ in regulating spindle position and orientation in *Caenorhabditis elegans* embryos. Nat. Cell. Biol. 3: 297-300.
2. Tsou, M.F., et al. 2003. LET-99 opposes G_α/GPR signaling to generate asymmetry for spindle positioning in response to PAR and MES-1/SRC-1 signaling. Development 130: 5717-5730.
3. Gotta, M., et al. 2003. Asymmetrically distributed *C. elegans* homologs of AGS3/PINS control spindle position in the early embryo. Curr. Biol. 13: 1029-1037.
4. Manning, D.R., et al. 2003. Evidence mounts for receptor-independent activation of heterotrimeric G proteins normally *in vivo*: positioning of the mitotic spindle in *C. elegans*. Sci. STKE. 2003: 35.
5. Bergmann, D.C., et al. 2003. Embryonic handedness choice in *C. elegans* involves the G_α protein GPA-16. Development 130: 5731-5740.
6. Colombo, K., et al. 2003. Translation of polarity cues into asymmetric spindle positioning in *Caenorhabditis elegans* embryos. Science 300: 1957-1961.
7. Afshar, K., et al. 2004. RIC-8 is required for GPR-1/2-dependent G_α function during asymmetric division of *C. elegans* embryos. Cell 119: 219-230.
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9. Afshar, K., et al. 2005. Cortical localization of the G_α protein GPA-16 requires RIC-8 function during *C. elegans* asymmetric cell division. Development 132: 4449-4459.
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SOURCE

GPA-16 (cF-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of GPA-16 of *C. elegans* origin.

RESEARCH USE

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

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-32688 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GPA-16 (cF-15) is recommended for detection of GPA-16 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).

Molecular Weight of GPA-16: 41 kDa.

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.

STORAGE

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

PROTOCOLS

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