

GPA2 (P-16): sc-49954

BACKGROUND

Glycoprotein hormone $\alpha 2$ subunit (GPA2) belongs to the dimeric glycoprotein hormones α chain family. GPA2 is an N-linked glycosylated secreted protein with ten cysteine residues likely involved in cysteine-knot formation. It forms a heterodimer with glycoprotein hormone $\beta 5$ subunit (GPB5), also called thyrostimulin hormone, and activates thyroid stimulating hormone receptor (also designated thyrotropin receptor or TSHR), which increases cAMP production and stimulates the thymus. GPA2 and GPB5 are both evolutionarily conserved and GPA2 may serve as a scaffold for GPB5 for downstream G protein-coupled signaling. GPA2 demonstrates ubiquitous expression, and co-localizes with GPB5 in the eye, testis and pituitary (GPA2 detected in the anterior lobe).

REFERENCES

- Hsu, S.Y., et al. 2002. Evolution of glycoprotein hormone subunit genes in bilateral metazoa: identification of two novel human glycoprotein hormone subunit family genes, GPA2 and GPB5. *Mol. Endocrinol.* 16: 1538-1551.
- Maidan, M.M., et al. 2005. The G protein-coupled receptor Gpr1 and the G_{α} protein GPA2 act through the cAMP-protein kinase A pathway to induce morphogenesis in *Candida albicans*. *Mol. Biol. Cell* 16: 1971-1986.
- Harashima, T., et al. 2005. G_{α} subunit GPA2 recruits kelch repeat subunits that inhibit receptor-G protein coupling during cAMP-induced dimorphic transitions in *Saccharomyces cerevisiae*. *Mol. Biol. Cell* 16: 4557-4571.
- Ivey, F.D., et al. 2005. Direct activation of fission yeast adenylate cyclase by the GPA2 G_{α} of the glucose signaling pathway. *Proc. Natl. Acad. Sci. USA* 102: 6108-6113.
- Sudo, S., et al. 2005. Heterodimeric fly glycoprotein hormone- $\alpha 2$ (GPA2) and glycoprotein hormone- $\beta 5$ (GPB5) activate fly leucine-rich repeat-containing G protein-coupled receptor-1 (DLGR1) and stimulation of human thyrotropin. *Endocrinology* 146: 3596-3604.
- Nagasaki, H., Wang, Z., Jackson, V.R., Lin, S., Nothacker, H.P. and Civelli, O. 2006. Differential expression of the thyrostimulin subunits, glycoprotein $\alpha 2$ and $\beta 5$ in the rat pituitary. *J. Mol. Endocrinol.* 37: 39-50.

CHROMOSOMAL LOCATION

Genetic locus: GPHA2 (human) mapping to 11q13.1; Gpha2 (mouse) mapping to 19 A.

SOURCE

GPA2 (P-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of GPA2 of human origin.

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.

PRODUCT

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

Blocking peptide available for competition studies, sc-49954 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GPA2 (P-16) is recommended for detection of GPA2 of mouse, rat and human 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).

GPA2 (P-16) is also recommended for detection of GPA2 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for GPA2 siRNA (h): sc-60713, GPA2 siRNA (m): sc-60714, GPA2 shRNA Plasmid (h): sc-60713-SH, GPA2 shRNA Plasmid (m): sc-60714-SH, GPA2 shRNA (h) Lentiviral Particles: sc-60713-V and GPA2 shRNA (m) Lentiviral Particles: sc-60714-V.

Molecular Weight (predicted) of GPA2: 14 kDa.

Molecular Weight (observed) of GPA2: 28 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.

RESEARCH USE

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