



# G<sub>α</sub> i/o/t/z (D-15): sc-12798

## BACKGROUND

Heterotrimeric G proteins function to relay information from cell surface receptors to intracellular effectors. Each of a very broad range of receptors specifically detects an extracellular stimulus (a photon, pheromone, odorant, hormone or neurotransmitter) while the effectors (i.e. adenylyl cyclase), which act to generate one or more intracellular messengers, are less numerous. In mammals, G protein  $\alpha$ ,  $\beta$  and  $\gamma$  polypeptides are encoded by at least 16, 4 and 7 genes, respectively. Most interest in G proteins has been focused on their  $\alpha$  subunits, since these proteins bind and hydrolyze GTP and most obviously regulate the activity of the best studied effectors. Four distinct classes of G<sub>α</sub> subunits have been identified; these include G<sub>s</sub>, G<sub>i</sub>, G<sub>q</sub> and G<sub>α12/13</sub>. The G<sub>i</sub> class comprises all the known  $\alpha$  subunits that are susceptible to pertussis toxin modifications, including G<sub>αi-1</sub>, G<sub>αi-2</sub>, G<sub>αi-3</sub>, G<sub>αo</sub>, G<sub>αt1</sub>, G<sub>αt2</sub>, G<sub>αz</sub> and G<sub>αgust</sub>. Of these, the three G<sub>αi</sub> subtypes function to open atrial potassium channels.

## REFERENCES

1. Jones, D.T., Masters, S.B., Bourne, H.R. and Reed, R.R. 1990. Biochemical characterization of three stimulatory GTP-binding proteins. The large and small forms of G<sub>s</sub> and the olfactory-specific G protein, G<sub>olf</sub>. *J. Biol. Chem.* 265: 2671-2676.
2. Simon, M.I., Strathmann, M.P., and Gautam, N. 1991. Diversity of G proteins in signal transduction. *Science* 252: 802-808.
3. Cali, J.J., Balcueva, E.A., Rybalkin, I. and Robishaw, J.D. 1992. Selective tissue distribution of G protein  $\gamma$  subunits, including a new form of the  $\gamma$  subunits identified by cDNA cloning. *J. Biol. Chem.* 267: 24023-24027.
4. McLaughlin, S.K., McKinnon, P.J. and Margolskee, R.F. 1992. Gustducin is a taste-cell-specific G protein closely related to the transducins. *Nature* 357: 563-569.
5. von Weizsäcker, E., Strathman, M.P. and Simon, M.I. 1992. Diversity among the  $\beta$  subunits of heterotrimeric GTP-binding proteins: characterization of a novel  $\beta$ -subunit cDNA. *Biochem. Biophys. Res. Commun.* 183: 350-356.
6. Conklin, B.R. and Bourne, H.R. 1993. Structural elements of G<sub>α</sub> subunits that interact with G<sub>βγ</sub> receptors, and effectors. *Cell* 73: 631-641.

## SOURCE

G<sub>α</sub> i/o/t/z (D-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of G<sub>αo</sub> of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-12798 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

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

## APPLICATIONS

G<sub>α</sub> i/o/t/z (D-15) is recommended for detection of all members of the G<sub>α</sub> family 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).

## 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.

## SELECT PRODUCT CITATIONS

1. Zhang, Q., Pacheco, M.A. and Doupnik, C.A. 2002. Gating properties of GIRK channels activated by G<sub>αo</sub>- and G<sub>αi</sub>-coupled muscarinic m2 receptors in *Xenopus* oocytes: the role of receptor precoupling in RGS modulation. *J. Physiol.* 545: 355-373.
2. Salim, S., Sinnarajah, S., Kehrl, J.H. and Dessauer, C.W. 2003. Identification of RGS2 and type V adenylyl cyclase interaction sites. *J. Biol. Chem.* 278: 15842-15849.
3. Thomas, P., Pang, Y., Dong, J., Groenen, P., Kelder, J., de Vlieg, J., Zhu, Y. and Tubbs, C. 2007. Steroid and G protein binding characteristics of the seatrout and human progesterin membrane receptor  $\alpha$  subtypes and their evolutionary origins. *Endocrinology* 48: 705-718.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.