SANTA CRUZ BIOTECHNOLOGY, INC.

# $G_{\alpha\ i/o/t/z}$ (D-15): sc-12798

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## 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. adenyl 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 $G_\alpha$ subunits have been identified; these include $G_s$, $G_i$, $G_q$ and $G_{\alpha\ 12/13}$. The $G_i$ class comprises all the known $\alpha$ subunits that are susceptible to pertussis toxin modifications, including $G_{\alpha\ i\text{-}1}$, $G_{\alpha\ i\text{-}2}$, $G_{\alpha\ i\text{-}3}$, $G_{\alpha\ o}$, $G_{\alpha\ t1}$, $G_{\alpha\ t2}$, $G_{\alpha\ z}$ and $G_{\alpha\ gust}$. Of these, the three $G_{\alpha\ i}$ subtypes function to open atrial potassium channels.

## REFERENCES


1. Jones, D.T., et al. 1990. Biochemical characterization of three stimulatory GTP-binding proteins. The large and small forms of $G_s$ and the olfactory-specific G protein, $G_{olf}$. J. Biol. Chem. 265: 2671-2676.
2. Simon, M.I., et al. 1991. Diversity of G proteins in signal transduction. Science 252: 802-808.
3. Cali, J.J., et al. 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., et al. 1992. Gustducin is a taste-cell-specific G protein closely related to the transducins. Nature 357: 563-569.
5. von Weizsäcker, E., et al. 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., et al. 1993. Structural elements of $G_\alpha$ subunits that interact with $G_{\beta\gamma}$, receptors, and effectors. Cell 73: 631-641.


## SOURCE

$G_{\alpha\ i/o/t/z}$ (D-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of $G_{\alpha\ o}$ of human origin.

## 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-12798 P, (100 µg 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.

## RESEARCH USE

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

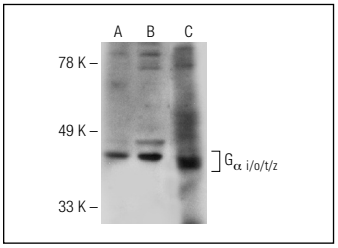
## APPLICATIONS

$G_{\alpha\ i/o/t/z}$ (D-15) is recommended for detection of all members of the $G_\alpha$ family of mouse, rat and human 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).

$G_{\alpha\ i/o/t/z}$ (D-15) is also recommended for detection of all members of the $G_\alpha$ family in additional species, including equine, canine, bovine, porcine and avian.

Positive Controls: SK-BR-3 cell lysate: sc-2218, MCF7 whole cell lysate: sc-2206 or SK-N-SH cell lysate: sc-2410.

## DATA




$G_{\alpha\ i/o/t/z}$ (D-15): sc-12798. Western blot analysis of $G_{\alpha\ i/o/t/z}$ expression in SKBR-3 (**A**), MCF7 (**B**) and SK-N-SH (**C**) whole cell lysates.

## SELECT PRODUCT CITATIONS


1. Zhang, Q., et al. 2002. Gating properties of GIRK channels activated by $G_{\alpha\ o}$- and $G_{\alpha\ i}$-coupled muscarinic m2 receptors in *Xenopus* oocytes: the role of receptor precoupling in RGS modulation. J. Physiol. 545: 355-373.
2. Salim, S., et al. 2003. Identification of RGS2 and type V adenylyl cyclase interaction sites. J. Biol. Chem. 278: 15842-15849.
3. Clack, J.W., et al. 2006. Transducin subunit stoichiometry and cellular distribution in rod outer segments. Cell Biol. Int. 30: 829-835.
4. Thomas, P., et al. 2007. Steroid and G protein binding characteristics of the seatrout and human progestin membrane receptor $\alpha$ subtypes and their evolutionary origins. Endocrinology 48: 705-718.
5. Clack, J.W. 2008. Affinity of transducin for photoactivated rhodopsin: dependence on nucleotide binding state. BMB Rep. 41: 548-553.
6. Niwa, A., et al. 2011. A novel serum-free monolayer culture for orderly hematopoietic differentiation of human pluripotent cells via mesodermal progenitors. PLoS ONE 6: e22261.


## PROTOCOLS

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