SANTA CRUZ BIOTECHNOLOGY, INC.

$G_{\alpha\ i\text{-}3}$ (C-10): sc-262

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 α, β and γ polypeptides are encoded by at least 16, 4 and 7 genes, respectively. Most interest in G proteins has been focused on their α subunits, since these proteins bind and hydrolyze GTP and most obviously regulate the activity of the best studied effectors. Four distinct classes of G_α 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 α 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. J. Biol. Chem. 265: 2671-2676.
2. Simon, M.I., et al. 1991. Diversity of G proteins in signal transduction. Science 252: 802-808.

SOURCE

$G_{\alpha\ i\text{-}3}$ (C-10) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the C-terminus of $G_{\alpha\ i\text{-}3}$ of rat origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-262 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

$G_{\alpha\ i\text{-}3}$ (C-10) is recommended for detection of $G_{\alpha\ i\text{-}1}$, $G_{\alpha\ i\text{-}3}$, and, to a lesser extent, $G_{\alpha\ i\text{-}2}$ 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).

$G_{\alpha\ i\text{-}3}$ (C-10) is also recommended for detection of $G_{\alpha\ i\text{-}3}$, $G_{\alpha\ i\text{-}3}$, and, to a lesser extent, $G_{\alpha\ i\text{-}3}$ in additional species, including equine, canine, bovine, porcine and avian.

Molecular Weight of $G_{\alpha\ i\text{-}3}$: 45 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, mouse brain extract: sc-2253 or rat brain extract: sc-2392.

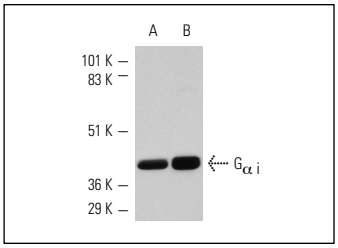
STORAGE

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

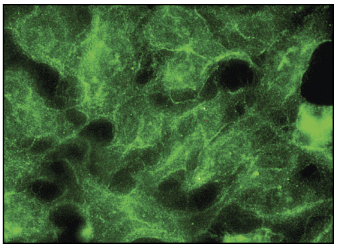
RESEARCH USE

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

DATA



$G_{\alpha\ i\text{-}3}$ (C-10): sc-262. Western blot analysis of $G_{\alpha\ i}$ expression in bovine brain (**A**) and rat brain (**B**) extracts.



$G_{\alpha\ i\text{-}3}$ (C-10): sc-262. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization.

SELECT PRODUCT CITATIONS

1. Fukushima, N., et al. 1998. A single receptor encoded by vzg-1/lpA1/EDG-2 couples to G proteins and mediates multiple cellular responses to lysophosphatidic acid. Proc. Natl. Acad. Sci. USA 95: 6151-6156.
2. Formichini, E., et al. 1998. Expression of G_α proteins in the developing, denervated, or injured rat molar tooth. Anat. Embryol. 198: 515-522.
3. Garcia-Marcos, M., et al. 2011. A GDI (AGS3) and a GEF (GIV) regulate autophagy by balancing G protein activity and growth factor signals. Mol. Biol. Cell 22: 673-686.
4. Garcia-Marcos, M., et al. 2011. Expression of GIV/Girdin, a metastasis-related protein, predicts patient survival in colon cancer. FASEB J. 25: 590-599.
5. Sandoval, Y.H., et al. 2011. Transactivation of epidermal growth factor receptor by enhanced levels of endogenous angiotensin II contributes to the overexpression of $G_{i\ \alpha}$ proteins in vascular smooth muscle cells from SHR. Cell. Signal. 23: 1716-1726.
6. Fourla, D.D., et al. 2012. Selective interactions of spinophilin with the C-terminal domains of the δ- and μ-opioid receptors and G proteins differentially modulate opioid receptor signaling. Cell. Signal. 24: 2315-2328.
7. Jeon, J.P., et al. 2012. Selective $G_{\alpha i}$ subunits as novel direct activators of transient receptor potential canonical (TRPC)4 and TRPC5 channels. J. Biol. Chem. 287: 17029-17039.
8. Gusan, S., et al. 2013. cAMP attenuates the enhanced expression of G_i proteins and hyperproliferation of vascular smooth muscle cells from SHR: role of Ros and Ros-mediated signaling. Am. J. Physiol., Cell Physiol. 304: C1198-C1209.