SANTA CRUZ BIOTECHNOLOGY, INC.

$G_{\alpha\ i\text{-}1}$ (R4): sc-13533

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.

CHROMOSOMAL LOCATION

Genetic locus: GNAI1 (human) mapping to 7q21.11; Gnai1 (mouse) mapping to 5 A3.

SOURCE

$G_{\alpha\ i\text{-}1}$ (R4) is a mouse monoclonal antibody raised against $G_{\alpha\ i\text{-}1}$ of rat origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

$G_{\alpha\ i\text{-}1}$ (R4) is available conjugated to agarose (sc-13533 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-13533 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-13533 PE), fluorescein (sc-13533 FITC), Alexa Fluor® 488 (sc-13533 AF488), Alexa Fluor® 546 (sc-13533 AF546), Alexa Fluor® 594 (sc-13533 AF594) or Alexa Fluor® 647 (sc-13533 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-13533 AF680) or Alexa Fluor® 790 (sc-13533 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

$G_{\alpha\ i\text{-}1}$ (R4) is recommended for detection of $G_{\alpha\ i\text{-}1}$ of mouse, rat, human and bovine 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for $G_{\alpha\ i\text{-}1}$ siRNA (h): sc-105382, $G_{\alpha\ i\text{-}1}$ siRNA (m): sc-41751, $G_{\alpha\ i\text{-}1}$ shRNA Plasmid (h): sc-105382-SH, $G_{\alpha\ i\text{-}1}$ shRNA Plasmid (m): sc-41751-SH, $G_{\alpha\ i\text{-}1}$ shRNA (h) Lentiviral Particles: sc-105382-V and $G_{\alpha\ i\text{-}1}$ shRNA (m) Lentiviral Particles: sc-41751-V.

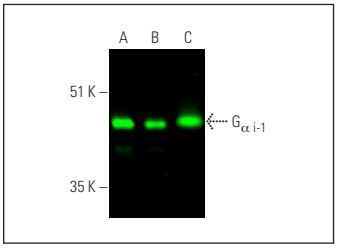
Molecular Weight of $G_{\alpha\ i\text{-}1}$: 41 kDa.

Positive Controls: rat brain extract: sc-2392, mouse brain extract: sc-2253 or human cerebral cortex extract: sc-516707.

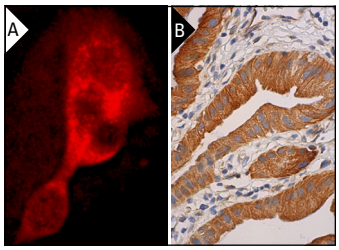
STORAGE

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

DATA



$G_{\alpha\ i\text{-}1}$ (R4): sc-13533. Near-infrared western blot analysis of $G_{\alpha\ i\text{-}1}$ expression in rat brain (**A**), mouse brain (**B**) and human cerebral cortex (**C**) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



$G_{\alpha\ i\text{-}1}$ (R4): sc-13533. Immunofluorescence staining of methanol-fixed SK-N-SH cells showing cytoplasmic staining (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Garic-Stankovic, A., et al. 2005. Ethanol triggers neural crest apoptosis through the selective activation of a pertussis toxin-sensitive G protein and a phospholipase Cβ-dependent Ca^{2+} transient. Alcohol. Clin. Exp. Res. 29: 1237-1246.
2. Shu, F.J., et al. 2010. RGS14 is a multifunctional scaffold that integrates G protein and Ras/Raf MAPkinase signalling pathways. Cell. Signal. 22: 366-376.
3. Sanchez, A.M., et al. 2011. Estrogen receptor-α promotes endothelial cell motility through focal adhesion kinase. Mol. Hum. Reprod. 17: 219-226.
4. Sanchez, A.M., et al. 2013. Effects of progesterone and medroxyprogesterone on actin remodeling and neuronal spine formation. Mol. Endocrinol. 27: 693-702.
5. Álvarez, R., et al. 2015. G protein-membrane interactions I: $G_{\alpha\ i\text{-}1}$ myristoyl and palmitoyl modifications in protein-lipid interactions and its implications in membrane microdomain localization. Biochim. Biophys. Acta 1851: 1511-1520.
6. Shortrede, J.E., et al. 2016. Paxillin, a novel controller in the signaling of estrogen to FAK/N-WASP/Arp2/3 complex in breast cancer cells. Mol. Cell. Endocrinol. 430: 56-67.
7. Xu, X., et al. 2019. 17β-estradiol non-genomically induces vascular endothelial H_2S release by promoting phosphorylation of cystathionine γ-lyase. J. Biol. Chem. 294: 15577-15592.
8. Dimitracopoulos, A., et al. 2020. Mechanochemical crosstalk produces cell-intrinsic patterning of the cortex to orient the mitotic spindle. Curr. Biol. 30: 3687-3696.e4.

RESEARCH USE

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