SANTA CRUZ BIOTECHNOLOGY, INC.

$G_{\alpha\ t1}$ (3): sc-136143

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 $G_{\alpha\ gust}$. In the well characterized visual system, photorhodopsin catalyzes the exchange of guanine nucleotides bound to the visual transducin G_α subunits ($G_{\alpha\ ti}$ in rod cells and $G_{\alpha\ t2}$ in cone cells).

REFERENCES

1. Jones, D.T. and Reed, R.R. 1987. Molecular cloning of five GTP-binding protein cDNA species from rat olfactory neuroepithelium. J. Biol. Chem. 262: 14241-14249.
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 γ subunits, including a new form of the γ 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 β subunits of heterotrimeric GTP-binding proteins: characterization of a novel β-subunit cDNA. Biochem. Biophys. Res. Commun. 183: 350-356.
6. Conklin, B.R. and Bourne, H.R. 1993. Structural elements of G_α subunits that interact with $G_{\beta\gamma}$, receptors, and effectors. Cell 73: 631-641.

CHROMOSOMAL LOCATION

Genetic locus: GNAT1 (human) mapping to 3p21.31; Gnat1 (mouse) mapping to 9 F1.

SOURCE

$G_{\alpha\ t1}$ (3) is a mouse monoclonal antibody raised against amino acids 282-300 of $G_{\alpha\ t1}$ of bovine origin.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

$G_{\alpha\ t1}$ (3) is recommended for detection of $G_{\alpha\ t1}$ of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); not recommended for immunoprecipitation.

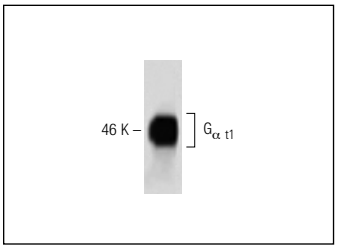
$G_{\alpha\ t1}$ (3) is also recommended for detection of $G_{\alpha\ t1}$ in additional species, including bovine.

Suitable for use as control antibody for $G_{\alpha\ t1}$ siRNA (h): sc-43783, $G_{\alpha\ t1}$ siRNA (m): sc-45759, $G_{\alpha\ t1}$ shRNA Plasmid (h): sc-43783-SH, $G_{\alpha\ t1}$ shRNA Plasmid (m): sc-45759-SH, $G_{\alpha\ t1}$ shRNA (h) Lentiviral Particles: sc-43783-V and $G_{\alpha\ t1}$ shRNA (m) Lentiviral Particles: sc-45759-V.

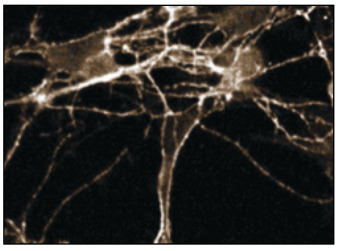
Molecular Weight of $G_{\alpha\ t1}$: 46 kDa.

Positive Controls: rat cerebellum extract: sc-2398 or rat brain extract: sc-2392.

DATA



$G_{\alpha\ t1}$ (3): sc-136143. Western blot analysis of $G_{\alpha\ t1}$ expression in rat cerebrum tissue extract.



$G_{\alpha\ t1}$ (3): sc-136143. Immunofluorescence staining of rat neuron cells showing membrane localization.

SELECT PRODUCT CITATIONS

1. Zeitz, C., et al. 2018. A novel heterozygous missense mutation in GNAT1 leads to autosomal dominant riggs type of congenital stationary night blindness. Biomed Res. Int. 2018: 7694801.
2. Martinez-De Luna, R.I. and Zuber, M.E. 2018. Rod-specific ablation using the nitroreductase/metronidazole system to investigate regeneration in *Xenopus*. Cold Spring Harb. Protoc. E-published.

RESEARCH USE

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

PROTOCOLS

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