SANTA CRUZ BIOTECHNOLOGY, INC.

$G_{\alpha\ q}$ (10): sc-136181

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 (e.g., 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_q class includes $G_{\alpha\ 15}$, $G_{\alpha\ 14}$, $G_{\alpha\ 11}$ and $G_{\alpha\ q}$, two of which, $G_{\alpha\ 11}$ and $G_{\alpha\ q}$ are abundant in brain and lung and present at lower levels in a variety of tissues.

CHROMOSOMAL LOCATION

Genetic locus: GNAQ (human) mapping to 9q21.2; Gnaq (mouse) mapping to 19 A.

SOURCE

$G_{\alpha\ q}$ (10) is a mouse monoclonal antibody raised against amino acids 22-31 of $G_{\alpha\ q}$ of human origin.

PRODUCT

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

$G_{\alpha\ q}$ (10) is available conjugated to agarose (sc-136181 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; and to HRP (sc-136181 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

APPLICATIONS

$G_{\alpha\ q}$ (10) is recommended for detection of $G_{\alpha\ q}$ of mouse, rat, human and canine 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for $G_{\alpha\ q}$ siRNA (h): sc-35429, $G_{\alpha\ q}$ siRNA (m): sc-35430, $G_{\alpha\ q}$ siRNA (r): sc-45998, $G_{\alpha\ q}$ shRNA Plasmid (h): sc-35429-SH, $G_{\alpha\ q}$ shRNA Plasmid (m): sc-35430-SH, $G_{\alpha\ q}$ shRNA Plasmid (r): sc-45998-SH, $G_{\alpha\ q}$ shRNA (h) Lentiviral Particles: sc-35429-V, $G_{\alpha\ q}$ shRNA (m) Lentiviral Particles: sc-35430-V and $G_{\alpha\ q}$ shRNA (r) Lentiviral Particles: sc-45998-V.

Molecular Weight of $G_{\alpha\ q}$: 45 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, $G_{\alpha\ q}$ (h): 293T Lysate: sc-128666 or NIH/3T3 whole cell lysate: sc-2210.

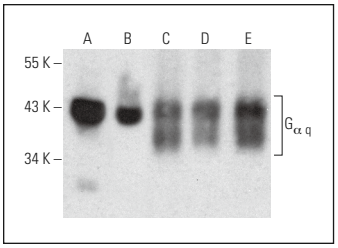
STORAGE

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

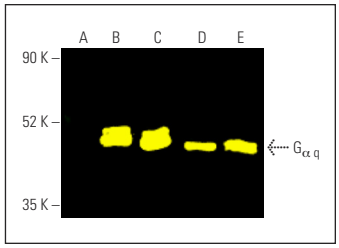
RESEARCH USE

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

DATA



$G_{\alpha\ q}$ (10): sc-136181. Western blot analysis of $G_{\alpha\ q}$ expression in Jurkat (**A**) and NIH/3T3 (**B**) whole cell lysates and human platelet (**C**), mouse brain (**D**) and rat brain (**E**) tissue extracts.



$G_{\alpha\ q}$ (10): sc-136181. Fluorescent western blot analysis of $G_{\alpha\ q}$ expression in non-transfected 293T: sc-117752 (**A**), human $G_{\alpha\ q}$ transfected 293T: sc-128666 (**B**), human $G_{\alpha\ q}$ transfected 293T: sc-128664 (**C**) and Jurkat (**D**) whole cell lysates and human brain tissue extract (**E**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG_1 BP-CFL 488: sc-533661.

SELECT PRODUCT CITATIONS

1. Klasen, K., et al. 2012. The TRPM8 ion channel comprises direct G_q protein-activating capacity. Pflugers Arch. 463: 779-797.
2. Shi, J., et al. 2016. Store depletion induces $G_{\alpha\ q}$-mediated PLCβ1 activity to stimulate TRPC1 channels in vascular smooth muscle cells. FASEB J. 30: 702-715.
3. Shi, J., et al. 2017. Store-operated interactions between plasmalemmal STIM1 and TRPC1 proteins stimulate PLCβ1 to induce TRPC1 channel activation in vascular smooth muscle cells. J. Physiol. 595: 1039-1058.
4. Makdissy, N., et al. 2018. Essential role of ATP6AP2 enrichment in caveolae/lipid raft microdomains for the induction of neuronal differentiation of stem cells. Stem Cell Res. Ther. 9: 132.
5. Kankanamge, D., et al. 2019. G protein αq exerts expression level-dependent distinct signaling paradigms. Cell. Signal. 58: 34-43.
6. Wang, Q., et al. 2020. Targeting opsin4/melanopsin with a novel small molecule suppresses PKC/RAF/MEK/ERK signaling and inhibits lung adenocarcinoma progression. Mol. Cancer Res. 18: 1028-1038.
7. Chatterjee, T., et al. 2021. Anti-GPR56 monoclonal antibody potentiates GPR56-mediated Src-Fak signaling to modulate cell adhesion. J. Biol. Chem. 296: 100261.
8. Teleuca, A.E., et al. 2022. Changes in mGlu5 receptor signaling are associated with associative learning and memory extinction in mice. Life 12: 463.
9. Chen, H., et al. 2022. Structure of S1PR2-heterotrimeric G_{13} signaling complex. Sci. Adv. 8: eabn0067.

PROTOCOLS

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