SANTA CRUZ BIOTECHNOLOGY, INC.

$G_{\alpha\ 12}$ (E-12): sc-515445

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 $G_{\alpha\ s}$, $G_{\alpha\ i}$, $G_{\alpha\ q}$ and $G_{\alpha\ 12/13}$. The two members of the fourth class of G_{α} subunit proteins, $G_{\alpha\ 12}$ and $G_{\alpha\ 13}$, are insensitive to ADP-ribosylation by pertussis toxin, share 67% identity with each other and less than 45% identity with other G_{α} subunits and are widely expressed in a broad range of tissues.

CHROMOSOMAL LOCATION

Genetic locus: GNA12 (human) mapping to 7p22.3; Gna12 (mouse) mapping to 5 G2.

SOURCE

$G_{\alpha\ 12}$ (E-12) is a mouse monoclonal antibody raised against amino acids 89-300 mapping within an internal region of $G_{\alpha\ 12}$ 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.

$G_{\alpha\ 12}$ (E-12) is available conjugated to agarose (sc-515445 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515445 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515445 PE), fluorescein (sc-515445 FITC), Alexa Fluor® 488 (sc-515445 AF488), Alexa Fluor® 546 (sc-515445 AF546), Alexa Fluor® 594 (sc-515445 AF594) or Alexa Fluor® 647 (sc-515445 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515445 AF680) or Alexa Fluor® 790 (sc-515445 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

$G_{\alpha\ 12}$ (E-12) is recommended for detection of $G_{\alpha\ 12}$ of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

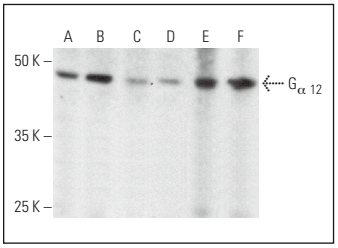
Suitable for use as control antibody for $G_{\alpha\ 12}$ siRNA (h): sc-41742, $G_{\alpha\ 12}$ siRNA (m): sc-41743, $G_{\alpha\ 12}$ siRNA (r): sc-270550, $G_{\alpha\ 12}$ shRNA Plasmid (h): sc-41742-SH, $G_{\alpha\ 12}$ shRNA Plasmid (m): sc-41743-SH, $G_{\alpha\ 12}$ shRNA Plasmid (r): sc-270550-SH, $G_{\alpha\ 12}$ shRNA (h) Lentiviral Particles: sc-41742-V, $G_{\alpha\ 12}$ shRNA (m) Lentiviral Particles: sc-41743-V and $G_{\alpha\ 12}$ shRNA (r) Lentiviral Particles: sc-270550-V.

Molecular Weight of $G_{\alpha\ 12}$: 45 kDa.

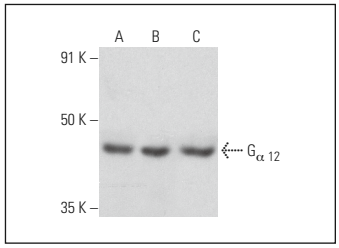
STORAGE

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

DATA



$G_{\alpha\ 12}$ (E-12): sc-515445. Western blot analysis of $G_{\alpha\ 12}$ expression in RAW 264.7 (**A**), 3T3-L1 (**B**), H19-7/IGF-IR (**C**) and NIH/3T3 (**D**) whole cell lysates and mouse heart (**E**) and rat brain (**F**) tissue extracts.



$G_{\alpha\ 12}$ (E-12): sc-515445. Western blot analysis of $G_{\alpha\ 12}$ expression in SK-N-SH (**A**), Neuro-2A (**B**) and KNRK (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Grundmann, M., et al. 2018. Lack of β-arrestin signaling in the absence of active G proteins. Nat. Commun. 9: 341.
2. Subramanian, A., et al. 2019. Auto-regulation of secretory flux by sensing and responding to the folded cargo protein load in the endoplasmic reticulum. Cell 176: 1461-1476.e23.
3. Zhang, F., et al. 2021. Reregulation of hepatic stellate cell contraction and cirrhotic portal hypertension by Wnt/β-catenin signaling via interaction with Gli1. Br. J. Pharmacol. 178: 378-380.
4. Hu, H.B., et al. 2021. LPA signaling acts as a cell-extrinsic mechanism to initiate cilia disassembly and promote neurogenesis. Nat. Commun. 12: 662.
5. Duszyc, K., et al. 2021. Mechanotransduction activates RhoA in the neighbors of apoptotic epithelial cells to engage apical extrusion. Curr. Biol. 31: 1326-1336.e5.
6. Chatterjee, T., et al. 2021. Anti-GPR56 monoclonal antibody potentiates GPR56-mediated Src-Fak signaling to modulate cell adhesion. J. Biol. Chem. 296: 100261.
7. Oda, Y., et al. 2021. Discovery of anti-inflammatory physiological peptides that promote tissue repair by reinforcing epithelial barrier formation. Sci. Adv. 7: eabj6895.
8. Czepiel, M., et al. 2022. Angiotensin II receptor 1 controls profibrotic Wnt/β-catenin signalling in experimentalautoimmune myocarditis. Cardiovasc. Res. 118: 573-584.
9. Cao, Y., et al. 2022. Defective VWF secretion due to the expression of MYH9-RD E1841K mutant in endothelial cells disrupts hemostasis. Blood Adv. 6: 4537-4552.

RESEARCH USE

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