SANTA CRUZ BIOTECHNOLOGY, INC.

$G_{\alpha\ o}$ (E-1): sc-393874

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, homone 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 a 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: GNAO1 (human) mapping to 16q12.2; Gnao1 (mouse) mapping to 8 C5.

SOURCE

$G_{\alpha\ o}$ (E-1) is a mouse monoclonal antibody raised against amino acids 40-291 mapping within an internal region of $G_{\alpha\ o}$ of human origin.

PRODUCT

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

$G_{\alpha\ o}$ (E-1) is available conjugated to agarose (sc-393874 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393874 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393874 PE), fluorescein (sc-393874 FITC), Alexa Fluor® 488 (sc-393874 AF488), Alexa Fluor® 546 (sc-393874 AF546), Alexa Fluor® 594 (sc-393874 AF594) or Alexa Fluor® 647 (sc-393874 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393874 AF680) or Alexa Fluor® 790 (sc-393874 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

$G_{\alpha\ o}$ (E-1) is recommended for detection of $G_{\alpha\ o}$ 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). $G_{\alpha\ o}$ (E-1) is also recommended for detection of $G_{\alpha\ o}$ in additional species, including equine and bovine.

Suitable for use as control antibody for $G_{\alpha\ o}$ siRNA (h): sc-29326, $G_{\alpha\ o}$ siRNA (m): sc-37256, $G_{\alpha\ o}$ shRNA Plasmid (h): sc-29326-SH, $G_{\alpha\ o}$ shRNA Plasmid (m): sc-37256-SH, $G_{\alpha\ o}$ shRNA (h) Lentiviral Particles: sc-29326-V and $G_{\alpha\ o}$ shRNA (m) Lentiviral Particles: sc-37256-V.

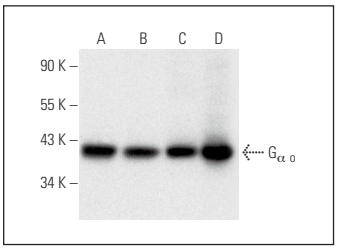
Molecular Weight of $G_{\alpha\ o}$: 40 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409, SK-N-SH cell lysate: sc-2410 or mouse brain extract: sc-2253.

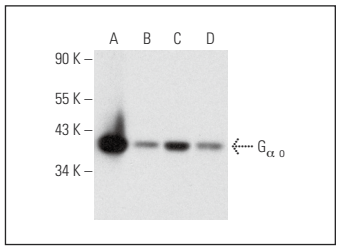
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



$G_{\alpha\ o}$ (E-1): sc-393874. Western blot analysis of $G_{\alpha\ o}$ expression in IMR-32 (**A**) and SK-N-SH (**B**) whole cell lysates and mouse brain (**C**) and rat brain (**D**) tissue extracts.



$G_{\alpha\ o}$ (E-1): sc-393874. Western blot analysis of $G_{\alpha\ o}$ expression in Y79 (**A**), NIH/3T3 (**B**), Neuro-2A (**C**) and C6 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Garza-Contreras, J., et al. 2017. Presence of androgen receptor variant in neuronal lipid rafts. eNeuro 4: ENEURO.0109-17.
2. Muneta-Arrate, I., et al. 2020. Pimavanserin exhibits serotonin 5-HT2A receptor inverse agonism for $G_{\alpha\ i1}$- and neutral antagonism for $G_{\alpha\ q/11}$-proteins in human brain cortex. Eur. Neuropsychopharmacol. 36: 83-89.
3. Costas-Insua, C., et al. 2021. Identification of BiP as a CB_1 receptor-interacting protein that fine-tunes cannabinoid signaling in the mouse brain. J. Neurosci. 41: 7924-7941.
4. Solis, G.P., et al. 2024. Neomorphic $G_{\alpha\ o}$ mutations gain interaction with Ric8 proteins in GNAO1 encephalopathies. J. Clin. Invest. 134: e172057.
5. Muneta-Arrate, I., et al. 2024. Ligand bias and inverse agonism on 5-HT2A receptor-mediated modulation of G protein activity in post-mortem human brain. Br. J. Pharmacol. E-published.

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.