SANTA CRUZ BIOTECHNOLOGY, INC.

G_{α} i-1/2/3 (35): sc-136478

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), whereas 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 subunits are encoded by at least 16, 4 and 7 different genes, respectively. The α subunits bind to and hydrolyze GTP. G protein complexes expressed in different tissues contain distinct α, β and γ subunits. Preferential associations between members of subunit families increase G protein functional diversity. 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.

REFERENCES

1. Jones D.T., et al. 1990. Biochemical characterization of three stimulatory GTP-binding proteins. The large and small forms of G_s and the olfactory-specific G protein, G_{olf}. J. Biol. Chem. 265: 2671-2676.
2. Simon, M.I., et al. 1991. Diversity of G proteins in signal transduction. Science 252: 802-808.

SOURCE

$G_{\alpha\ i\text{-}1/2/3}$ (35) is a mouse monoclonal antibody raised against amino acids 90-108 of $G_{\alpha\ i\text{-}1}$ of human 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.

$G_{\alpha\ i\text{-}1/2/3}$ (35) is available conjugated to agarose (sc-136478 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; and to HRP (sc-136478 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

STORAGE

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

APPLICATIONS

$G_{\alpha\ i\text{-}1/2/3}$ (35) is recommended for detection of $G_{\alpha\ i\text{-}1}$, $G_{\alpha\ i\text{-}2}$ and $G_{\alpha\ i\text{-}3}$ of mouse, rat and human 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).

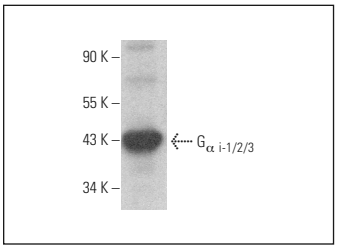
Molecular Weight of $G_{\alpha\ i\text{-}1/2/3}$: 41/41/45 kDa.

Positive Controls: rat kidney extract: sc-2394.

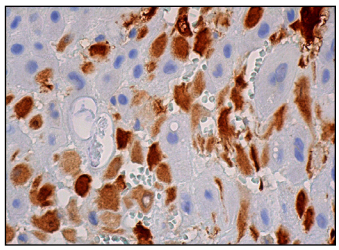
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



$G_{\alpha\ i\text{-}1/2/3}$ (35): sc-136478. Western blot analysis of $G_{\alpha\ i\text{-}1/2/3}$ expression in mouse brain tissue extract.



$G_{\alpha\ i\text{-}1/2/3}$ (35): sc-136478. Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing cytoplasmic staining of decidual cells.

SELECT PRODUCT CITATIONS

1. Yuan, X., et al. 2016. Ciliary IFT80 balances canonical versus non-canonical hedgehog signalling for osteoblast differentiation. Nat. Commun. 7: 11024.
2. Zhang, D.L., et al. 2018. G_q activity- and β-arrestin-1 scaffolding-mediated ADGRG2/CFTR coupling are required for male fertility. Elife 7: e33432.
3. Rawlinson, K.A., et al. 2019. Extraocular, rod-like photoreceptors in a flatworm express xenopsin photopigment. Elife 8: e45465.
4. Ashok, Y., et al. 2020. Discovery of compounds inhibiting the ADP-ribosyltransferase activity of pertussis toxin. ACS Infect. Dis. 6: 588-602.
5. Camilieri-Asch, V., et al. 2020. Multimodal imaging and analysis of the neuroanatomical organization of the primary olfactory inputs in the brown-banded bamboo shark, *Chiloscyllium punctatum*. Front. Neuroanat. 14: 560534.
6. Gerbier, R., et al. 2021. Pharmacological evidence for transactivation within melatonin MT_2 and serotonin 5-HT_{2C} receptor heteromers in mouse brain. FASEB J. 35: e21161.
7. Gong, S., et al. 2021. Cocaine shifts dopamine D2 receptor sensitivity to gate conditioned behaviors. Neuron 109: 3421-3435.e5.

RESEARCH USE

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