SANTA CRUZ BIOTECHNOLOGY, INC.

$G_{\alpha\ i-3}$ (H-7): sc-365422

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., adenylyl 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 $G_{\alpha\ i-1}$, $G_{\alpha\ i-2}$, $G_{\alpha\ i-3}$, $G_{\alpha\ o}$, $G_{\alpha\ t1}$, $G_{\alpha\ t2}$, $G_{\alpha\ z}$ and $G_{\alpha\ gust}$. Of these, the three $G_{\alpha\ i}$ subtypes function to open atrial potassium channels.

CHROMOSOMAL LOCATION

Genetic locus: GNAI1 (human) mapping to 7q21.11, GNAI3 (human) mapping to 1p13.3; Gnai1 (mouse) mapping to 5 A3, Gnai3 (mouse) mapping to 3 F2.3.

SOURCE

$G_{\alpha\ i-3}$ (H-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 339-354 at the C-terminus of $G_{\alpha\ i-3}$ of rat origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

$G_{\alpha\ i-3}$ (H-7) is available conjugated to agarose (sc-365422 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365422 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; and to either phycoerythrin (sc-365422 PE), fluorescein (sc-365422 FITC) or Alexa Fluor® 488 (sc-365422 AF488) or Alexa Fluor® 647 (sc-365422 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-365422 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

$G_{\alpha\ i-3}$ (H-7) is recommended for detection of $G_{\alpha\ i-1}$ and $G_{\alpha\ i-3}$ 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).

$G_{\alpha\ i-3}$ (H-7) is also recommended for detection of $G_{\alpha\ i-1}$ and $G_{\alpha\ i-3}$ in additional species, including equine, canine, bovine, porcine and avian.

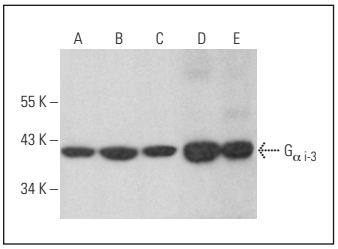
Molecular Weight of $G_{\alpha\ i-3}$: 45 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, Hep G2 cell lysate: sc-2227 or mouse brain extract: sc-2253.

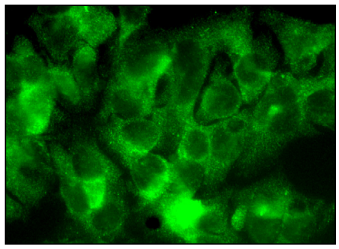
STORAGE

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

DATA



$G_{\alpha\ i-3}$ (H-7): sc-365422. Western blot analysis of $G_{\alpha\ i-3}$ expression in A-431 (**A**), Hep G2 (**B**) and U-937 (**C**) whole cell lysates and mouse brain (**D**) and rat kidney (**E**) tissue extracts.



$G_{\alpha\ i-3}$ (H-7): sc-365422. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Kojima, D., et al. 2011. UV-sensitive photoreceptor protein OPN5 in humans and mice. PLoS ONE 6: e26388.
2. Liu, Y., et al. 2017. Dibutyryl-cAMP attenuates pulmonary fibrosis by blocking myofibroblast differentiation via PKA/CREB/CBP signaling in rats with silicosis. Respir. Res. 18: 38.
3. Luessen, D.J., et al. 2017. Chronic intermittent ethanol exposure selectively alters the expression of G_α subunit isoforms and RGS subtypes in rat prefrontal cortex. Brain Res. 1672: 106-112.
4. Szymkowicz, D.B., et al. 2019. Exposure to arsenic during embryogenesis impairs olfactory sensory neuron differentiation and function into adulthood. Toxicology 420: 73-84.
5. Muneta-Arrate, I., et al. 2020. Pimavanserin exhibits serotonin 5-HT_{2A} 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.
6. 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.
7. Triana-Garcia, P.A., et al. 2021. Gross morphology, histology, and ultrastructure of the olfactory rosette of a critically endangered indicator species, the Delta Smelt, *Hypomesus transpacificus*. J. Comp. Physiol. A Neuroethol. Sens. Neural Behav. Physiol. 207: 597-616.
8. Yin, S., et al. 2022. Receptor activity-modifying protein 1 regulates mouse skin fibroblast proliferation via the $G_{\alpha\ i3}$-PKA-CREB-YAP axis. Cell Commun. Signal. 20: 52.

RESEARCH USE

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