SANTA CRUZ BIOTECHNOLOGY, INC.

G_β (H-1): sc-166123

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 (i.e., 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. Each subunit of the G protein complex is encoded by a member of one of three corresponding gene families (α, β and γ) In mammals, there are five different members of the β-subunit family. The β subunits of the G proteins are important regulators of G protein a subunits as well as of certain signal transduction receptors and effectors. In contrast to $G_{\beta\ 1\text{-}4}$, which are at least 83% homologous, $G_{\beta\ 5}$ is only 50% homologous to the other β subunits. Human $G_{\beta\ 5}$ is expressed at high levels in brain, pancreas, kidney, and heart.

SOURCE

G_β (H-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 302-340 at the C-terminus of G_β of mouse 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_β (H-1) is available conjugated to agarose (sc-166123 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166123 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166123 PE), fluorescein (sc-166123 FITC), Alexa Fluor® 488 (sc-166123 AF488), Alexa Fluor® 546 (sc-166123 AF546), Alexa Fluor® 594 (sc-166123 AF594) or Alexa Fluor® 647 (sc-166123 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166123 AF680) or Alexa Fluor® 790 (sc-166123 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166123 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

G_β (H-1) is recommended for detection of $G_{\beta\ 1}$, $G_{\beta\ 2}$, $G_{\beta\ 3}$ and $G_{\beta\ 4}$ 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), immunohistochemistry (including paraffin-embedded sections) (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_β (H-1) is also recommended for detection of $G_{\beta\ 1}$, $G_{\beta\ 2}$, $G_{\beta\ 3}$ and $G_{\beta\ 4}$ in additional species, including equine, canine, bovine, porcine and avian.

Molecular Weight of G_β: 36 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, C6 whole cell lysate: sc-364373 or U-251-MG whole cell lysate: sc-364176.

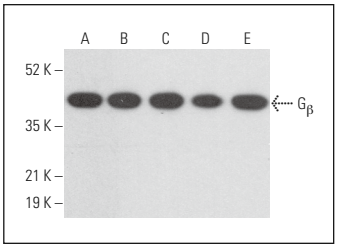
STORAGE

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

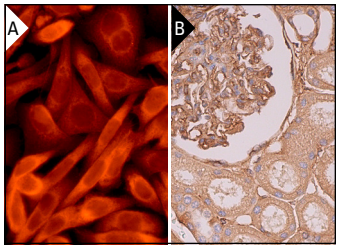
RESEARCH USE

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

DATA



G_β (H-1): sc-166123. Western blot analysis of G_β expression in U-251-MG (**A**), NIH/3T3 (**B**), AMJ2-C8 (**C**), C6 (**D**) and MCF7 (**E**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



G_β (H-1) Alexa Fluor® 546: sc-166123 AF546. Direct immunofluorescence staining of formalin-fixed SW480 cells showing cytoplasmic and membrane localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). G_β (H-1): sc-166123. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in glomeruli and cells in tubules (**B**).

SELECT PRODUCT CITATIONS

1. May, V., et al. 2010. Pituitary adenylate cyclase-activating polypeptide (PACAP)/PAC1HOP1 receptor activation coordinates multiple neurotrophic signaling pathways: Akt activation through phosphatidylinositol 3-kinase γ and vesicle endocytosis for neuronal survival. J. Biol. Chem. 285: 9749-9761.
2. Onken, M.D., et al. 2018. Targeting nucleotide exchange to inhibit constitutively active G protein α subunits in cancer cells. Sci. Signal. 11: eaao6852.
3. Ruiz-Velasco, A., et al. 2020. Targeting mir128-3p alleviates myocardial Insulin resistance and prevents ischemia-induced heart failure. Elife 9: e54298.
4. Kawakami, K., et al. 2022. Heterotrimeric G_q proteins act as a switch for GRK5/6 selectivity underlying β-arrestin transducer bias. Nat. Commun. 13: 487.
5. Gavid, M., et al. 2023. Technique of flat-mount immunostaining for mapping the olfactory epithelium and counting the olfactory sensory neurons. PLoS ONE 18: e0280497.
6. Park, J.C., et al. 2023. Fine-tuning GPCR-mediated neuromodulation by biasing signaling through different G protein subunits. Mol. Cell 83: 2540-2558.e12.
7. Shrestha, N., et al. 2023. Lipopolysaccharide-induced sepsis impairs M2R-GIRK signaling in the mouse sinoatrial node. Proc. Natl. Acad. Sci. USA 120: e2210152120.
8. Solis, G.P., et al. 2024. Neomorphic $G_{\alpha o}$ mutations gain interaction with Ric8 proteins in GNAO1 encephalopathies. J. Clin. Invest. 134: e172057.

PROTOCOLS

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