SANTA CRUZ BIOTECHNOLOGY, INC.

$G_{\gamma\ 3}$ (K-20): sc-375

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 (e.g., 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. Evidence, however, has established an important regulatory role for the $\beta\gamma$ subunits. It is becoming increasingly clear that different G protein complexes expressed in different tissues carry structurally distinct members of the γ, as well as the α and β, subunits and that preferential associations between members of subunit families increase G protein functional diversity.

REFERENCES

1. Gautam, N., et al. 1990. G protein diversity is increased by associations with a variety of γ subunits. Proc. Natl. Acad. Sci. USA 87: 7973-7977.
2. Simon, M.I., et al. 1991. Diversity of G proteins in signal transduction. Science 252: 802-808.
3. von Weizsäcker, E., et al. 1992. Diversity among the β subunits of heterotrimeric GTP-binding proteins: characterization of a novel β-subunit cDNA. Biochem. Biophys. Res. Comm. 183: 350-356.
4. Kleuss, C., et al. 1992. Different β-subunits determine G protein interaction with transmembrane receptors. Nature 358: 424-426.
5. Blank, J.L., et al. 1992. Activation of cytosolic phosphoinositide phospholipase C by G protein $\beta\gamma$ subunits. J. Biol. Chem. 267: 23069-23075.

CHROMOSOMAL LOCATION

Genetic locus: GNG3 (human) mapping to 11p11; Gng3 (mouse) mapping to 19 A.

SOURCE

$G_{\gamma\ 3}$ (K-20) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the N-terminus of $G_{\gamma\ 3}$ of bovine origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-375 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

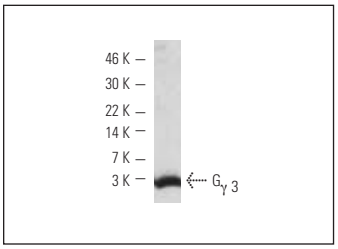
$G_{\gamma\ 3}$ (K-20) is recommended for detection of $G_{\gamma\ 3}$ of broad origin by Western blotting, immunoprecipitation [1–2 µg per 100–500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for $G_{\gamma\ 3}$ siRNA (h): sc-41776 and $G_{\gamma\ 3}$ siRNA (m): sc-41777.

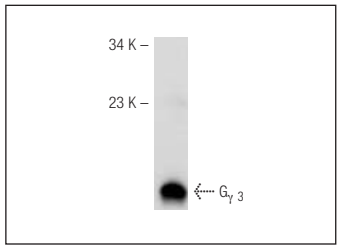
Molecular Weight of $G_{\gamma\ 3}$: 3-7 kDa.

Positive Controls: mouse cerebellum extract: sc-2403 or rat brain extract: sc-2392.

DATA



$G_{\gamma\ 3}$ (K-20): sc-375. Western blot analysis of $G_{\gamma\ 3}$ expression in rat brain extract.



$G_{\gamma\ 3}$ (K-20): sc-375. Western blot analysis of $G_{\gamma\ 3}$ expression in mouse brain tissue extract.

SELECT PRODUCT CITATIONS

1. Kowluru, A., et al. 1997. Glucose activates the carboxyl methylation of γ subunits of trimeric GTP-binding proteins in pancreatic β cells. Modulation *in vivo* by calcium, GTP, and pertussis toxin. J. Clin. Invest. 100: 1596-1610.
2. Macrez-Lepretre, N., et al. 1997. G protein heterotrimer $G_{\alpha\ 13/\beta\ 1/\gamma\ 3}$ couples the angiotensin AT1A receptor to increases in cytoplasmic Ca^{2+} in rat portal vein myocytes. J. Biol. Chem. 272: 10095-10102.
3. Macrez, N., et al. 1997. A $\beta\gamma$ dimer derived from G13 transduces the angiotensin AT_1 receptor signal to stimulation of CA^{2+} channels in rat portal vein myocytes. J. Biol. Chem. 272: 23180-23185.
4. Schuller, U., et al. 2001. Developmental expression of heterotrimeric G-proteins in the murine cerebellar cortex. Histochem. Cell Biol. 116: 149-159.
5. Sokolov, M., et al. 2004. Phosducin facilitates light-driven transducin translocation in rod photoreceptors: evidence from the phosducin knockout mouse. J. Biol. Chem. 279: 19149-19156.
6. Lobanova, E.S., et al. 2008 . Transducin γ-subunit sets expression levels of α- and β-subunits and is crucial for rod viability. J. Neurosci. 28: 3510-3520.