

GNAI2 Antibody / Guanine nucleotide-binding protein alpha-2 (FY12740)

Catalog No.	Formulation	Size
FY12740	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na ₂ HPO ₄ .
UniProt	P04899
Applications	Western Blot : 0.25-0.5ug/ml Immunohistochemistry : 2-5ug/ml Immunocytochemistry : 5ug/ml Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This GNAI2 antibody is available for research use only.

Description

GNAI2 antibody detects Guanine nucleotide-binding protein G(i) subunit alpha-2, a critical component of heterotrimeric G proteins that mediate signal transduction between G protein-coupled receptors (GPCRs) and intracellular effectors. Encoded by the GNAI2 gene on chromosome 3p21.31, this protein belongs to the G alpha inhibitory (Galphai) family, which suppresses adenylyl cyclase activity and thereby reduces cyclic AMP (cAMP) production. GNAI2 acts as a molecular switch, cycling between active GTP-bound and inactive GDP-bound forms to control pathways regulating cell growth, motility, and differentiation.

GNAI2 is widely expressed in most tissues, including brain, heart, and immune cells, where it plays diverse physiological roles. Upon receptor activation, GNAI2 dissociates from the G beta gamma subunits, allowing each component to activate distinct downstream signaling molecules. Through this mechanism, GNAI2 influences pathways controlling calcium mobilization, ion channel regulation, and MAPK activation. It is particularly important in immune cells, where it mediates chemokine-induced migration and adhesion, and in the nervous system, where it modulates neurotransmitter signaling.

The GNAI2 antibody is widely used in signal transduction, cardiovascular, and neurobiology research. Western blot analysis typically detects a 40 kilodalton band corresponding to the alpha subunit, while immunofluorescence reveals cytoplasmic and membrane localization. In cancer research, altered expression of GNAI2 has been linked to cell proliferation, epithelial-mesenchymal transition, and metastasis. Overexpression or constitutive activation of GNAI2 can promote oncogenic signaling, whereas loss-of-function mutations may disrupt normal G protein signaling dynamics.

Mechanistically, GNAI2 regulates adenylyl cyclase inhibition, phosphatidylinositol 3-kinase (PI3K) activation, and small GTPase modulation. It also interacts with receptor kinases and scaffolding proteins to fine-tune receptor responsiveness. Dysregulation of GNAI2 signaling contributes to cardiovascular dysfunction, immune dysregulation, and tumorigenesis. The GNAI2 antibody enables detailed study of these pathways, supporting analyses of GPCR signaling fidelity and receptor desensitization mechanisms. NSJ Bioreagents provides this antibody validated for its applications, ensuring consistent performance in diverse experimental systems.

Application Notes

Optimal dilution of the GNAI2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human GNAI2 recombinant protein (Position: R67-N312) was used as the immunogen for the GNAI2 antibody.

Storage

After reconstitution, the GNAI2 antibody can be stored for up to one month at 4°C. For long-term, aliquot and store at -20°C. Avoid repeated freezing and thawing.