3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-G$\alpha_{i1,2}$
produced in rabbit, whole antiserum

Catalog Number **G4915**

Product Description

Anti-G$\alpha_{i1,2}$ is produced in rabbit using as immunogen a synthetic peptide (KNNLKDCGLF) corresponding to the C-terminal of G$\alpha_{i1,2}$.

Anti- G$\alpha_{i1,2}$ is reactive in all mammalian tissues. Applications include the detection of G$\alpha_{i1,2}$ by immunoblotting (40 kDa).

Identified by the α subunit, heterotrimeric G proteins are composed of $\alpha\beta\gamma$ subunits. They transduce, amplify and diversify the signal generated by the occupancy of a receptor by its hormone or agonist into regulation of one or more effector systems. Receptors activate G proteins by increasing the affinity of the G(GDP) complex for Mg^{2+}. Bound Mg^{2+} causes GDP to dissociate and allow GTP to bind and make G(GTP). This is followed by a subunit dissociation reaction that results in active α(GTP) plus a $\beta\gamma$ complexed to agonist-occupied receptor. The latter can dissociate further to give free $\beta\gamma$. Both the α(GTP) and $\beta\gamma$ dimer modulate effector function.

Both α(GTP) and $\beta\gamma$ dimers are signaling molecules and modulate positively or negatively a variety of effector functions. The α subunits remain active until they hydrolize GTP to GDP. α(GDP) has high affinity for $\beta\gamma$ and reconstitutes into trimeric G(GDP) which is ready for another round of nucleotide exchange, activation by GTP and effector modulation through subunit dissociation. Alternatively α(GDP) may recombine with $\beta\gamma$ still associated with the agonist-receptor complex to give a quaternary agonist-receptor-G(GDP) complex ready to be activated. A single ligand occupied receptor is able to activate several G protein molecules during the lifetime of a single α(GTP) complex. The signal imparted by the binding of a single agonist to its receptor is thus transduced and amplified leading to generation of several active α(GTP) and $\beta\gamma$ molecules during the lifetime of the first α(GTP). The diversification of the receptor signal is due to 1) a single receptor possessing the ability to affect a group of G proteins, such as the Gi/Go or the Gq/11-class of G proteins; 2) α and $\beta\gamma$ subunits having different effects in different cells due to expression of different effectors, and 3) G proteins and their effectors being specially segregated in a given cell. Thus while in one part of a cell, signaling can occur through G_i coupled to K^+ channel and adenylyl cyclase (AC), in another part of the cell, responses can be mediated through G_o coupled to a Ca^{2+} channel.

α Subunits are encoded in 15 genes and several transcripts are alternatively spliced ($5\alpha_s$, $2\alpha_{i2}$, $2\alpha_o$ forms). Receptors may discriminate between splice variants; whether splice variants are functionally different in regulating effectors is not known. All α subunits appear to be palmitoylated near the N-terminus. Palmitate turns over, and may affect, regulation of GTPase activity by GTPase activating proteins such as regulators of G protein signaling (RGS).

Reagent

Supplied as whole antiserum containing ≤0.1% sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in “frost-free” freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile
Immunoblotting: a working dilution of 1:100 to 1:200 is recommended using using plasma membrane fractions and chemiluminescence detection.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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