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ProductInformation

Anti-Gi alpha ($G_{i\alpha}$)
Developed in Rabbit,
Whole Antiserum

Product Number **G 6040**

Product Description

Anti-Gi alpha ($G_{i\alpha}$) is developed in rabbit using a synthetic peptide (CLDRIAQPNYI) corresponding to an internal peptide of Gi alpha ($G_{i\alpha}$) as immunogen.

Anti-Gi alpha ($G_{i\alpha}$) is reactive with $G_{i\alpha}$ (40 kDa) in mammalian tissues by immuno blotting.

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 spatially 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).

Reagents

Anti-Gi alpha ($G_{i\alpha}$) is supplied as whole antiserum containing 0.1% sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content, a Material Safety Data Sheet (MSDS) for this product has been sent to the attention of the Safety Officer of your institution. Consult the MSDS for information regarding hazardous 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 is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile
The recommended dilution is 1:100 to 1:200 for immunoblotting using plasma membrane fractions and chemiluminescence detection.

Note: In order to obtain best results and assay sensitivities of different techniques and preparations, we recommend determining optimal working dilution by titration test.

References

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