

$G_{s\alpha L}$ -Leu²²⁷-Asn²⁹⁵

stimulatory heterotrimeric G-protein, long splice variant of the α -subunit
rat, recombinant, Sf9 insect cells

Cat. No.	Amount
PR-503	1 ml

For *in vitro* use only
Quality guaranteed for 12 months
Store at -80°C

Avoid freeze / thaw cycles

Form

Membrane suspension. Supplied in 75 mM Tris-HCl
pH 7.4, 12.5 mM MgCl₂ and 1 mM EDTA.

Molecular Weight

52 kDa

Description

$G_{s\alpha L}$ is the long splice variant of the α -subunit of stimulatory heterotrimeric G_s-proteins. It differs from the short splice variant ($G_{s\alpha S}$) by 15-amino acid insert between the Ras-like domain and the α -helical domain. $G_{s\alpha L}$ activates adenylate cyclase (AC) and possesses a lower GDP-affinity than $G_{s\alpha S}$ (cat.# PR-505).

These differences in GDP-affinity have important consequences for receptor/G-protein coupling and AC activation.

GTP-binding possesses a highly conserved aspartate residue in the NKXD motif that is critical for high-affinity interaction with GTP. In almost all GTP-binding proteins so far, the D/N-mutation switches base-specificity from guanine to xanthine.

Whereas the exchange of Asp²⁹⁵ to Asn²⁹⁵ leads to inactive mutants of G_{α} -subunits, an additional Q/L-mutation in the catalytic site (Gln₂₂₇ → Leu₂₂₇) rescues protein function and induces xanthine nucleotide-specificity.

Selected References:

- Graziano *et al.* (1989) Expression of $G_{s\alpha}$ in Escherichia coli. Purification and properties of two forms of the protein. *J. Biol. Chem.* **264**:409.
- Gille *et al.* (2003) 2'-(3'-O-(N-Methylanthraniloyl))-substituted GTP Analogs: A Novel Class of Potent Competitive Adenylyl Cyclase Inhibitors. *J. Biol. Chem.* **278**:12672.
- Gille *et al.* (2003) GDP Affinity and Order State of the catalytic Site Are Critical for Function of Xanthine Nucleotide-selective $G_{\alpha S}$ Proteins. *J. Biol. Chem.* **278**:7822.

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