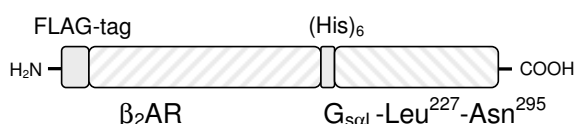


β_2 -AR- $G_{s\alpha L}$ -Leu²²⁷-Asn²⁹⁵

β_2 -Adrenergic Receptor $G_{s\alpha L}$ fusion protein
 human, recombinant, Sf9 insect cells

Cat. No.	Amount
PR-534	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

104 kDa

Activity

3.7 pmol/mg

Description

β_2 -Adrenergic receptor- $G_{s\alpha L}$ -Leu²²⁷-Asn²⁹⁵ is a fusion protein in which the $G_{s\alpha L}$ -Leu²²⁷-Asn²⁹⁵ N-terminus is linked to the β_2 -adrenoceptor (β_2 AR) C-terminus via a hexahistidine (His_6)-tag.

The β_2 AR is activated by the catecholamine epinephrine and couples to the G-protein G_s to mediate adenylate cyclase (AC) activation. β_2 ARs are found in numerous tissues and cell types including vascular and bronchial smooth muscle cells, leukocytes and liver. β_2 ARs mediate smooth muscle relaxation, inhibition of leukocyte function and activation of glycogenolysis.

$G_{s\alpha L}$ is the long splice variant of the α -subunit of the heterotrimeric G-protein G_s . G_s activates the effector AC. $G_{s\alpha L}$ differs from the short splice variant ($G_{s\alpha S}$) by a 15-amino acid insert between the ras-like domain and the α -helical domain. $G_{s\alpha L}$ (cat.# PR-501) possesses a lower GDP-affinity than $G_{s\alpha S}$ (cat.# PR-505).

GTP-binding proteins possess a highly conserved aspartate residue in the NKXD motif that is critical for high-affinity interaction with GTP. In small GTP-binding proteins, the D/N-mutation switches base-specificity from guanine to xanthine. The exchange of Asp²⁹⁵ to Asn²⁹⁵ leads to an inactive $G_{s\alpha}$ -mutant. However, an additional Q/L-mutation in the catalytic site (Gln₂₂₇ → Leu₂₂₇) that abolishes GTPase activity and increases GDP-affinity rescues protein function and induces specificity for XTP (cat.# NU-602) and XppNHp (cat.# NU-403) relative to GTP and GppNHp (cat.# NU-401), respectively. In contrast, the mutant is not specific for XTP- γ S (cat.# NU-404) relative to GTP- γ S (cat.# NU-412), probably because of conformational alterations in the catalytic site by the γ -thiophosphate.

The fusion protein contains a N-terminal FLAG-tag® for immunochemical detection.

Selected References:

- Seifert *et al.* (1998) Different effects of $G_{s\alpha}$ splice variants on β_2 -adrenoceptor-mediated signaling. *J. Biol. Chem.* **273**:5109.
 Graziano *et al.* (1989) Synthesis in *Escherichia coli* of GTPase-deficient mutants of $G_{s\alpha}$. *J. Biol. Chem.* **264**:15475.
 Seifert *et al.* (1998) Reconstitution of β_2 -adrenoceptor-GTP-binding-protein interaction in Sf9 cells: High coupling efficiency in β_2 -adrenoceptor- $G_{s\alpha}$ fusion protein. *Eur. J. Biochem.* **255**:369.
 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.