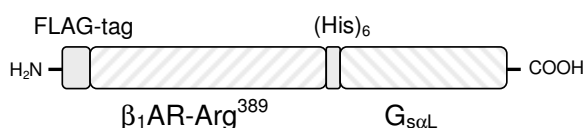


## $\beta_1$ -AR-Arg<sup>389</sup>-G<sub>s $\alpha$ L</sub>

$\beta_1$ -Adrenergic Receptor G<sub>s $\alpha$ L</sub> fusion protein  
 human, recombinant, Sf9 insect cells

Cat. No.	Amount
PR-525	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 MgCl<sub>2</sub> and 1 mM EDTA.

### Molecular Weight

111 kDa

### Description

$\beta_1$ -Adrenergic receptor-Arg<sup>389</sup>-G<sub>s $\alpha$ L</sub> is a fusion protein in which the G<sub>s $\alpha$ L</sub> N-terminus is linked to the  $\beta_1$ -adreno-receptor ( $\beta_1$ AR) C-terminus via a hexahistidine (His<sub>6</sub>)-tag. The  $\beta_1$ AR is activated by the catecholamines epinephrine and norepinephrine and couples to the G-protein G<sub>s</sub> to mediate adenylate cyclase (AC) stimulation. The  $\beta_1$ AR exists as several polymorphic forms of which the Gly<sup>389</sup> and Arg<sup>389</sup> variants are among the best known. There is a controversy whether or not there are functional differences between the two  $\beta_1$ AR polymorphisms.

$\beta_1$ ARs are mainly found in the heart, kidney, and fat tissue. These receptors are involved in physiological processes such as heart contraction, renin release and lipolysis. G<sub>s $\alpha$ L</sub> is the long splice variant of the  $\alpha$ -subunit of the heterotrimeric G-protein G<sub>s</sub>. G<sub>s $\alpha$ L</sub> differs from the short splice variant (G<sub>s $\alpha$ S</sub>) by a 15-amino acid insert between the ras-like domain and the  $\alpha$ -helical domain. G<sub>s $\alpha$ L</sub> (cat.# PR-501) possesses a lower GDP-affinity than G<sub>s $\alpha$ S</sub> (cat.# PR-505). The  $\beta_1$ AR-Arg<sup>389</sup>-G<sub>s $\alpha$ L</sub> fusion protein ensures a defined 1:1 stoichiometry of the receptor and the G<sub>s $\alpha$ L</sub> subunit as well as high coupling efficiency.  $\beta_1$ AR-Arg<sup>389</sup>-G<sub>s $\alpha$ L</sub> exhibits hallmarks of high constitutive activity, i.e. high efficacy and potency of partial agonists at activating [<sup>35</sup>S]GTP $\gamma$ S binding and high efficiency of agonist-free  $\beta_1$ AR-Arg<sup>389</sup>-G<sub>s $\alpha$ L</sub> at activating AC. There are only very few functional differences between  $\beta_1$ AR-Arg<sup>389</sup>-G<sub>s $\alpha$ L</sub> and  $\beta_1$ AR-Gly<sup>389</sup>-G<sub>s $\alpha$ L</sub> (cat.# PR-522). The fusion protein contains a N-terminal FLAG-tag® for immunochemical detection.

### Selected References:

- Wenzel-Seifert *et al.* (2002) Similarities and differences in the coupling of human  $\beta_1$ - and  $\beta_2$ -adrenoreceptors to G<sub>s $\alpha$</sub>  splice variants. *Biochem. Pharmacol.* **64**:9.
- Wenzel-Seifert *et al.* (2003) Properties of Arg<sup>389</sup>- $\beta_1$ -adrenoceptor-G<sub>s $\alpha$</sub>  fusion proteins: Comparison with Gly<sup>389</sup>- $\beta_1$ -adrenoceptor-G<sub>s $\alpha$</sub>  fusion proteins. *Receptors Channels* **9**:315.
- Small *et al.* (2003) Pharmacology and physiology of human adrenergic receptor polymorphism. *Annu. Rev. Pharmacol. Toxicol.* **42**:381.