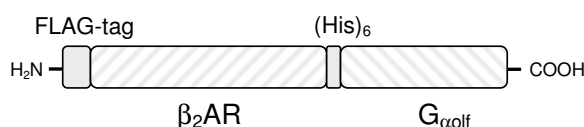


**$\beta_2$ -AR- $G_{\alpha\text{olf}}$**   
 **$\beta_2$ -Adrenergic Receptor  $G_{\alpha\text{olf}}$  fusion protein**  
**human, recombinant, Sf9 insect cells**

Cat. No.	Amount
PR-543	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

100 kDa

### Activity

7 - 15 pmol/mg

### Description

$\beta_2$ -Adrenergic receptor ( $\beta_2$ AR)- $G_{\alpha\text{olf}}$  is a fusion protein in which the  $G_{\alpha\text{olf}}$  N-terminus is linked to the  $\beta_2$ -adrenoceptor ( $\beta_2$ AR) C-terminus via a hexahistidine ( $\text{His}_6$ )-tag.

The  $\beta_2$ AR is activated by the catecholamine epinephrine and couples to the G-protein  $G_s$  to mediate adenylyl cyclase (AC) activation.  $\beta_2$ ARs are found in numerous tissues and cell types including vascular and bronchial smooth muscle cells, leukocytes and liver.

$\beta_2$ ARs mediate smooth muscle relaxation, inhibition of leukocyte function and activation of glycogenolysis.

$G_{\alpha\text{olf}}$  is the so-called olfactory  $G_s$ -protein. However,  $G_{\alpha\text{olf}}$  is not only expressed in olfactory epithelium but also in many other organs including the pancreas and testis.

$G_{\alpha\text{olf}}$  is structurally related to the short splice variant of  $G_{s\alpha}$ ,  $G_{s\alpha S}$  (cat.# PR-505). Compared to  $G_{s\alpha S}$ ,  $G_{\alpha\text{olf}}$  is less efficient at activating AC. This difference can be explained by the faster deactivation and lower GDPaffinity of  $G_{\alpha\text{olf}}$ .

The  $\beta_2$ AR- $G_{\alpha\text{olf}}$  fusion protein ensures a defined 1:1 stoichiometry of the receptor and the  $G_{\alpha\text{olf}}$  subunit as well as high coupling efficiency. Compared to  $\beta_2$ AR- $G_{s\alpha S}$  (cat.# PR-544),  $\beta_2$ AR- $G_{\alpha\text{olf}}$  is less efficient at activating AC. Moreover,  $\beta_2$ AR- $G_{\alpha\text{olf}}$  exhibits hallmarks of constitutive activity as assessed by increased efficacy of partial agonists in the steady-state GTPase assay.

The  $\beta_2$ AR contains a N-terminal FLAG-tag® for immunochemical detection.

### Selected References:

- Jones *et al.* (1990) Biochemical characterization of three stimulatory GTP-binding proteins. The large and small forms of  $G_s$  and the olfactory-specific G-protein,  $G_{\text{olf}}$ . *J. Biol. Chem.* **265**:2671.
- Liu *et al.* (2001) The olfactory G protein  $G_{\alpha\text{olf}}$  possesses a lower GDPaffinity and deactivates more rapidly than  $G_{s\alpha\text{short}}$ : consequences for receptor-coupling and adenylyl cyclase activation. *J. Neurochem.* **78**:325.
- Gille *et al.* (2003) Co-expression of the  $\beta_2$ -adrenoceptor and dopamine D<sub>1</sub>-receptor with  $G_{s\alpha}$  proteins in Sf9 insect cells: limitations in comparison with fusion proteins. *Biochim. Biophys. Acta* **1613**:101.