

PACAP receptor/ADCYAP1R1 Protein, Human, Recombinant (hFc)

General Information

Synonyms:	adenylate cyclase activating polypeptide 1 (pituitary) receptor type I; PACAPRI; PAC1R; PACAPR; PAC1
Protein Construction:	A DNA sequence encoding the human ADCYAP1R1 (P41586) extracellular domain (Met 1-Ala 155) was fused with the Fc region of human IgG1 at the C-terminus. Predicted N terminal: Asp 24
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P41586
Molecular Weight:	42 kDa (predicted); 65 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 88 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:	A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.
Stability & Storage:	It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Pituitary adenylate cyclase activating polypeptide (PACAP, Adcyap1) activation of PAC1 receptors (Adcyap1r1) significantly increases excitability of guinea pig cardiac neurons. This modulation of excitability is mediated in part by plasma membrane G protein-dependent activation of adenylyl cyclase and downstream signaling cascades.

Studies point to the potential role of the (pituitary) adenylate cyclase activating polypeptide receptor 1 (ADCYAP1R1) gene, which has been implicated in stress response, in posttraumatic stress disorder (PTSD). Pituitary adenylate cyclase-activating polypeptide (PACAP; Adcyap1) and its cognate PAC1 receptor (Adcyap1r1) are expressed in peripheral nociceptive pathways, participate in anxiety-related responses and have been linked to posttraumatic stress disorder and other mental health afflictions. Recent studies revealed the role of the PAC1 (ADCYAP1R1) gene variability in vulnerability to posttraumatic stress disorder in women. Due to the relatively high comorbidity of posttraumatic stress disorder and substance use disorder, we hypothesized about possible associations between PAC1 gene and problematic alcohol use.

Reference

- Solano RM. et al., 1996, Endocrinology. 137 (7): 2815-22.
Miampamba M. et al., 2002, Regul Pept. 105 (3): 145-54.
Brabet P. et al., 1997, Genomics. 38 (1): 100-2.

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