PACAP (1-27), human, ovine, rat TFA

Cat. No.: HY-P0176A

Molecular Formula: $C_{144}H_{225}F_3N_{40}O_{41}S$

Molecular Weight: 3261.68

Sequence: His-Ser-Asp-Gly-Ile-Phe-Thr-Asp-Ser-Tyr-Ser-Arg-Tyr-Arg-Lys-Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Ala-Ala-Val-Leu-NH2 HSDGIFTDSYSRYRKQMAVKKYLAAVL-NH_2 (TFA salt)

Sequence Shortening: HSDGIFTDSYSRYRKQMAVKKYLAAVL-NH2

Target: Others

Pathway: Others

Storage: Sealed storage, away from moisture and light, under nitrogen
Powder -80°C 2 years
-20°C 1 year
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light, under nitrogen)

SOLVENT & SOLUBILITY

In Vitro

DMSO : 250 mg/mL (76.65 mM; Need ultrasonic)
H_2O : 100 mg/mL (30.66 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	0.3066 mL	1.5330 mL	3.0659 mL
5 mM	0.0613 mL	0.3066 mL	0.6132 mL
10 mM	0.0307 mL	0.1533 mL	0.3066 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (0.64 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.08 mg/mL (0.64 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (0.64 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

PACAP (1-27), human, ovine, rat TFA (PACAP 1-27 TFA) is the N-terminal fragment of PACAP-38, and is a potent PACAP receptor antagonist with IC_{50}s of 3 nM, 2 nM and 5 nM for rat PAC1, rat VPAC1 and human VPAC2, respectively[1].

IC_{50} & Target	IC50: 3 nM (rat PAC1), 2 nM (rat VPAC1), 5 nM (human VPAC2)[1]
In Vitro	Radioligand receptor binding assays with I-monoiodinated PACAP (1-27), human, ovine, rat confirms the presence of PAC - receptors on AR4-2J cells, since PACAP (1-27), human, ovine, rat and PACAP(1–38) equipotently displaces radioligand binding with a K_d of 1-2 nM, whereas vasoactive intestinal peptide (VIP) is 1000-fold less potent. PACAP (1-27), human, ovine, rat exhibits a distinct and much higher susceptibility to VIP-amino acid substitutions. PACAP (1-27), human, ovine, rat has potency and binding affinity to stimulate IP3 and cAMP formation in AR4-2J cells[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	The inhibitory effect of pituitary adenylate cyclase activating polypeptide (PACAP (1-27), human, ovine, rat) on the increase in total pulmonary resistance (RL) causes either by allergen or histamine in anaesthetized, ventilated guinea-pigs is studied. PACAP (1-27), human, ovine, rat given via i.v. infusion (0.045-4.5 nmol/kg/min) dose-dependently reduces the increase in RL caused by inhaled ovalbumin and histamine. At the highest dose, PACAP (1-27), human, ovine, rat prevents the increase in RL caused by ovalbumin and histamine completely. Infusion of PACAP (1-27), human, ovine, rat and the β2-adrenoceptor agonist, salbutamol (0.045-4.5 nmol/kg/min) inhibit the increase in RL similarly, but salbutamol increases the heart rate more than PACAP (1-27), human, ovine, rat[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Metab. 2022 Nov 11;S1550-4131(22)00490-9.

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REFERENCES

[1]. Gourlet P, et al. Fragments of pituitary adenylate cyclase activating polypeptide discriminate between type I and II recombinant receptors. Eur J Pharmacol. 1995 Dec 4;287(1):7-11.

[2]. Schäfer H, et al. Structural motifs of pituitary adenylate cyclase-activating polypeptide (PACAP) defining PAC1-receptor selectivity. Regul Pept. 1999 Feb 5;79(2-3):83-92.

[3]. Lindén A, et al. Inhibition of bronchoconstriction by pituitary adenylate cyclase activating polypeptide (PACAP 1-27) in guinea-pigs in vivo. Br J Pharmacol. 1995 Jul;115(6):913-6.

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