# PACAP-38 (31-38), human, mouse, rat TFA

**Cat. No.:** HY-P1845A

**Molecular Formula:** $C_{49}H_{84}F_3N_{17}O_{13}$

**Molecular Weight:** 1176.29

**Sequence:** Tyr-Lys-Gln-Arg-Val-Lys-Asn-Lys-NH2

**Sequence Shortening:** YKQRVKNK-NH2

**Target:** ERK; EGFR; Reactive Oxygen Species; Calcium Channel

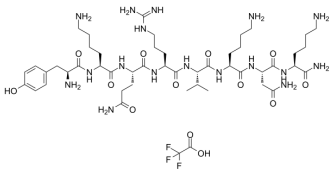
**Pathway:** MAPK/ERK Pathway; Stem Cell/Wnt; JAK/STAT Signaling; Protein Tyrosine Kinase/RTK; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Membrane Transporter/Ion Channel; Neuronal Signaling

**Storage:** Sealed storage, away from moisture

Powder -80°C 2 years

-20°C 1 year

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



## SOLVENT & SOLUBILITY

**In Vitro**

$H_2O$ : 100 mg/mL (85.01 mM; Need ultrasonic)

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 0.8501 mL | 4.2507 mL | 8.5013 mL |
| | 5 mM | 0.1700 mL | 0.8501 mL | 1.7003 mL |
| | 10 mM | 0.0850 mL | 0.4251 mL | 0.8501 mL |

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

**In Vivo**

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (85.01 mM); Clear solution; Need ultrasonic

## BIOLOGICAL ACTIVITY

**Description**

PACAP-38 (31-38), human, mouse, rat TFA is a $PAC_1$ receptor activator and increases the α-secretase activity. PACAP-38 (31-38), human, mouse, rat TFA elevates cytosolic $Ca^{2+}$, increases proliferation and increases phosphorylation of extracellular regulates kinase (ERK) and the epidermal growth factor receptor (EGFR). PACAP-38 (31-38), human, mouse, rat TFA demonstrates potent, efficacious, and sustained stimulatory effects on sympathetic neuronal NPY and catecholamine production. PACAP-38 (31-38), human, mouse, rat TFA can be used for neurotrophic and neuroprotective research[1][2][3].

**In Vitro**

PACAP-38 (31-38), human, mouse, rat TFA (100 nM; 2 min; NCI-H838 cells) induces EGFR, HER2 and ERK tyrosine phosphorylation[1].

PACAP-38 (31-38), human, mouse, rat TFA (100 nM; 30 min; NCI-H838 cells) induces EGFR tyrosine phosphorylation with

generates ROS and increases ROS levels by 51%[1].
PACAP-38 (31-38), human, mouse, rat TFA (10 nM; 48 h) stimulates the growth of NCI-H838 cells[1].
PACAP-38 (31-38), human, mouse, rat TFA (300 nM; 4 h) stimulates generation of APPsα in neural cells[2].
PACAP-38 (31-38), human, mouse, rat TFA (0.01-10 nM; HEK 293 cells) stimulates neural cells express endogenous PAC1 receptors by cAMP accumulation and by an increase in cytosolic free calcium and induces elevation of the intracellular $Ca^{2+}$ concentration in a dose-dependent manner with an $EC_{50}$ value of 0.81 nM[2].
PACAP-38 (31-38), human, mouse, rat TFA (0.01 nM; 48 h) elicits potent and efficacious stimulation of NPY secretion from SCG neuronal cultures[3].
PACAP-38 (31-38), human, mouse, rat TFA (100 nM; 14 d) produces sustained stimulated NPY and catecholamine secretionmpathetic neurons[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

| | |
|---|---|
| Cell Line: | NCI-H838 cells |
| Concentration: | 10 nM |
| Incubation Time: | 48 hours |
| Result: | Increased the number of NCI-H838 cells by 72%. |

Western Blot Analysis[1]

| | |
|---|---|
| Cell Line: | NCI-H838 cells |
| Concentration: | 100 nM |
| Incubation Time: | 2 min |
| Result: | Increased tyrosine phosphorylation of the EGFR, HER2, and ERK by 377, 299 and 216%, respectively. |

## REFERENCES


[1]. Moody TW, et, al. PAC1 regulates receptor tyrosine kinase transactivation in a reactive oxygen species-dependent manner. Peptides. 2019 Oct;120:170017.

[2]. Kojro E, et, al. The neuropeptide PACAP promotes the alpha-secretase pathway for processing the Alzheimer amyloid precursor protein. FASEB J. 2006 Mar;20(3):512-4.

[3]. Braas KM, et, al. Pituitary adenylate cyclase-activating polypeptides, PACAP-38 and PACAP-27, regulation of sympathetic neuron catecholamine, and neuropeptide Y expression through activation of type I PACAP/VIP receptor isoforms. Ann N Y Acad Sci. 1996 De



**Caution: Product has not been fully validated for medical applications. For research use only.**



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