Substance P

Cat. No.: HY-P0201

CAS No.: 33507-63-0

Molecular Formula: $C_{63}H_{98}N_{18}O_{13}S$

Molecular Weight: 1347.63

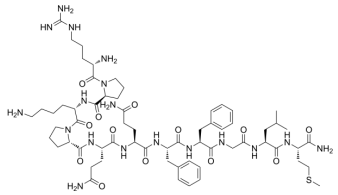
Sequence: Arg-Pro-Lys-Pro-Gln-Gln-Phe-Phe-Gly-Leu-Met-NH2

Sequence Shortening: RPKPQQFFGLM-NH2

Target: Neurokinin Receptor; Endogenous Metabolite

Pathway: GPCR/G Protein; Neuronal Signaling; Metabolic Enzyme/Protease

Storage: Stored under nitrogen, away from moisture
Powder -80°C 2 years
-20°C 1 year
* In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (18.55 mM; Need ultrasonic)
H_2O : ≥ 20 mg/mL (14.84 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	0.7420 mL	3.7102 mL	7.4204 mL
	5 mM	0.1484 mL	0.7420 mL	1.4841 mL
	10 mM	0.0742 mL	0.3710 mL	0.7420 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: ≥ 2.5 mg/mL (1.86 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (1.86 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (1.86 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Substance P (Neurokinin P) is a neuropeptide, acting as a neurotransmitter and as a neuromodulator in the CNS. The endogenous receptor for substance P is neurokinin 1 receptor (NK1-receptor, NK1R).

IC_{50} & Target	NK1	Human Endogenous Metabolite
In Vitro	The neuropeptide substance P (SP) that are mediated by the neurokinin 1 receptor (NK1-R) desensitize and resensitize, which may be associated with NK1-R endocytosis and recycling. SP and the NK1-R are internalized into the same clathrin immunoreactive vesicles, and then sorted into different compartments. SP is intact at the cell surface and in early endosomes, but slowly degraded in perinuclear vesicles. SP induces clathrin-dependent internalization of the NK1-R. The SP/NK1-R complex dissociates in acidified endosomes. SP is degraded, whereas the NK1-R recycles to the cell surface. SP induces internalization of the NK1-R both in transfected epithelial cells[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.	

CUSTOMER VALIDATION

- Cell Discov. 2023 Jun 30;9(1):66.
- Cell Prolif. 2019 Jan;52(1):e12527.
- Prog Neurobiol. 2021 Mar 22;102041.
- J Invest Dermatol. 2022 Nov 18;S0022-202X(22)02770-1.
- iScience. 2023 Apr 13.

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REFERENCES

[1]. Grady EF, et al. Delineation of the endocytic pathway of substance P and its seven-transmembrane domain NK1 receptor. Mol Biol Cell. 1995 May;6(5):509-24.

[2]. Zhang L, et al. MiR-34b/c-5p and the neurokinin-1 receptor regulate breast cancer cell proliferation and apoptosis. Cell Prolif. 2018 Oct 17:e12527.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA