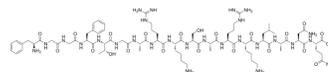


Nociceptin

Cat. No.:	HY-P0183
CAS No.:	170713-75-4
Molecular Formula:	C ₇₉ H ₁₂₉ N ₂₇ O ₂₂
Molecular Weight:	1809.04
Sequence:	Phe-Gly-Gly-Phe-Thr-Gly-Ala-Arg-Lys-Ser-Ala-Arg-Lys-Leu-Ala-Asn-Gln
Sequence Shortening:	FGGFTGARKSARKLANQ
Target:	Opioid Receptor
Pathway:	GPCR/G Protein; 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

DMSO : 50 mg/mL (27.64 mM; Need ultrasonic)
 H₂O : ≥ 50 mg/mL (27.64 mM)
 * "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	0.5528 mL	2.7639 mL	5.5278 mL
	5 mM	0.1106 mL	0.5528 mL	1.1056 mL
	10 mM	0.0553 mL	0.2764 mL	0.5528 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 50 mg/mL (27.64 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (1.38 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (1.38 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (1.38 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Nociceptin, a heptadecapeptide, is the endogenous ligand of the nociceptin receptor, acting as a potent anti-analgesic.

In Vitro

Nociceptin (1 µg/mL) significantly prevents LPS (10 ng/mL)-stimulated cell migration whereas it is ineffective when added alone. Nociceptin (1 nM-10 µM) elicits a concentration-dependent blockade of LPS-mediated cell migration, with a maximal effect at 1 and 10 µM. Nociceptin counteracts LPS-induced elevation of IL-1β mRNA levels. Nociceptin (1 µM) and NNC 55-0396 induce apoptotic cell death in U87 cells. Nociceptin (1 µM) counteracts LPS-induced [Ca²⁺]_i increase in U87 cells via β-arrestin 2. Nociceptin counteracts the LPS-induced phosphorylation of PKC and ERK in U87 cells. Nociceptin inhibits the LPS-mediated transcriptional activation of NF-κB and AP-1 reporter genes^[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^[1]

Cell proliferation assay is carried out in the assay. U87 cells are plated on 12-well plate and treated for 24 h maintained in cell culture medium containing 10% fetal bovine serum. Five hours before the end of the treatments, [methyl-³H] Thymidine (50 nM final concentration) is added to serum-free cell culture medium and the plate is incubated at 37°C. Thereafter, medium is removed and cells are washed twice with PBS. 200 µL of PBS is added to each well, the cells are scraped off and centrifuged at 13,000g for 3 min at 4°C; supernatants are then discarded, pellets resuspended in 500 µL of cold trichloroacetic acid (10% w/v), incubated on ice for 20 min and centrifuged at 13,000g for 3 min at 4°C. The obtained supernatant is then discarded, pellet suspended in 500 µL of cold methanol and centrifuged at 3 min for 13,000g at 4°C. After that, the pellet is suspended in 200 µL of NaOH 1 N and heated at 55°C for 10 min. Samples are then neutralized with 200 µL of HCl 1 N and 350 µL of the labeled DNA incubated in counting vials with 4 mL of Filter Count scintillation liquid. Vials are vortexed and incubated overnight at room temperature and the radioactivity is determined by liquid scintillation spectrometry.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Neurotherapeutics. 2024 Jul 13:e00424.
- bioRxiv. 2023 May 26.

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REFERENCES

[1]. Bedini A, et al. Nociceptin/orphanin FQ antagonizes lipopolysaccharide-stimulated proliferation, migration and inflammatory signaling in human glioblastoma U87 cells. *Biochem Pharmacol.* 2017 Sep 15;140:89-104.

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

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