C-Type Natriuretic Peptide (CNP) (1-22), human

Cat. No.:	HY-P1237
CAS No.:	127869-51-6
Molecular Formula:	$C_{93}H_{157}N_{27}O_{28}S_3$
Molecular Weight:	2197.6
Sequence:	Gly-Leu-Ser-Lys-Gly-Cys-Phe-Gly-Leu-Lys-Leu-Asp-Arg-Ile-Gly-Ser-Met-Ser-Gly-Leu-Gly-Cys (Disulfide bridge: Cys6-Cys22)
Sequence Shortening:	GLSKGCFGLKLDRIGSMSGLGC (Disulfide bridge: Cys6-Cys22)
Target:	Others
Pathway:	Others
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)

GLSKGCFGLKLDRIGSMSGLGC (Disulfide bridge: Cys_6-Cys_{22})

SOLVENT & SOLUBILITY

In Vitro

H_2O : 10 mg/mL (4.55 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	0.4550 mL	2.2752 mL	4.5504 mL
5 mM	---	---	---
10 mM	---	---	---

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

BIOLOGICAL ACTIVITY

Description

C-Type Natriuretic Peptide (CNP) (1-22), human, a 1-22 fragment of CNP, is a natriuretic peptide receptor B (NPR-B) agonist. C-Type Natriuretic Peptide (CNP) (1-22), human inhibits cAMP synthesis stimulated by the physiological agonists histamine and 5-HT or directly by Forskolin. CNP is a potent, endothelial-derived relaxant and growthinhibitory factor[1][2][3].

IC_{50} & Target

NPR-B[1]

In Vitro

C-Type Natriuretic Peptide (CNP) (1-22), human (TFA) (0.01, 0.1, 1, 10, 100, 1000 nM) increases cGMP production in CHO cells expressing human NPR-B in a concentration-dependent manner[1].

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

In Vivo

PK parameters of CNP immunoreactivity after a single intravenous administration of C-Type Natriuretic Peptide (CNP) (1-22),

human[1]:

Dose (nM/kg)	$AUC_{0-\infty}$ (pM·min/mL)	$MRT_{0-\infty}$ (min)	$T_{1/2}$ (min)	CL_{tot} (mL/min/kg)
20	320±54	1.02±0.18	1.42±0.45	63.9±11.9

PK parameters of CNP immunoreactivity after a single subcutaneous administration of C-Type Natriuretic Peptide (CNP) (1-22), human[1]:

Dose (nM/kg)	Cmax (pM/mL)	Tmax (min)	$AUC_{0-\infty}$ (pM·min/mL)	$MRT_{0-\infty}$ (min)	$T_{1/2}$ (min)
50	9.02±3.74	5.0±0.0	152±73	13.9±3.4	10.0±5.0

Each value represents the mean±SD of 3 rats. MRT=mean residence time, CL_{tot}=total clearance, $T_{1/2}$=half-life period, BA=bioavailability.
i.c.v. administration of C-Type Natriuretic Peptide (CNP) (1-22) in a dose of 2 nM induces an increase in the severity of picrotoxin-kindled convulsions 24 and 48 hrs after application of the peptide[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration

Rats[3]

Rats are preliminarily kindled with picrotoxin and convulsion is monitored. Rats then receive I.c.v. administration of C-Type Natriuretic Peptide (CNP) (1-22) (0.2, 1 or 2 nM in 2 mcl of 0.9% NaCl) under conditions of free behavior. Control animals receive an equal volume of saline. Within 10 min after the injections of the peptides, picrotoxin (1.5 mg/kg) is administered i.p. and the convulsion severity is evaluated as mentioned above[3].

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

CUSTOMER VALIDATION

- Acta Biomater. 2022 Aug 21;S1742-7061(22)00506-2.

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REFERENCES

[1]. Mazarati AM, et al. ANP(1-28), BNP(1-32) and CNP(1-22) increase the severity of picrotoxin-kindled seizure syndrome in rats. Life Sci. 1993;52(3):PL19-24.

[2]. Morozumi N, et al. ASB20123: A novel C-type natriuretic peptide derivative for treatment of growth failure and dwarfism. PLoS One. 2019 Feb 22;14(2):e0212680.

[3]. Buckley MG, et al. Circulating C-type natriuretic peptide is increased in orthotopic cardiac transplant recipients and associated with cardiac allograft vasculopathy. Clin Sci (Lond). 2000 Nov;99(5):467-72.

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

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