Dolcanatide

Cat. No.: HY-P3499

CAS No.: 1092457-65-2

Molecular Formula: $C_{65}H_{104}N_{18}O_{26}S_4$

Molecular Weight: 1681.89

Sequence: {d-Asn}--Asp-Glu-Cys-Glu-Leu-Cys-Val-Asn-Val-Ala-Cys-Thr-Gly-Cys-{d-Leu} (Disulfide bridge: Cys4-Cys12; Cys7-Cys15)

Sequence Shortening: {d-Asn}-DECELCVNVACTGC-{d-Leu} (Disulfide bridge: Cys4-Cys12; Cys7-Cys15)

Target: Guanylate Cyclase

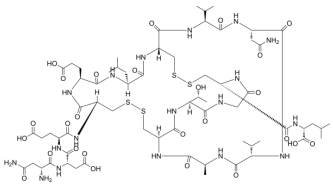
Pathway: GPCR/G Protein

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 : 100 mg/mL (59.46 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	0.5946 mL	2.9728 mL	5.9457 mL
	5 mM	0.1189 mL	0.5946 mL	1.1891 mL
	10 mM	0.0595 mL	0.2973 mL	0.5946 mL

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

BIOLOGICAL ACTIVITY

Description

Dolcanatide is an orally active GC-C (guanylate cyclase-C) agonist. Dolcanatide shows laxative, anti-nociceptive and anti-inflammatory activity. Dolcanatide can be used in inflammatory bowel disease research[1][2].

In Vitro

Dolcanatide (0-10 μM; 30 min) activates GC-C receptors to stimulate cGMP synthesis in a dose-dependent manner in T84 cells[2].

Dolcanatide (1 μM; 16 h) suppresses lipopolysaccharide-induced paracellular permeability in Caco-2 and T84 cells[1].

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

Cell Viability Assay[2]

Cell Line:	T84 cells

Concentration:	0-10 μM
Incubation Time:	30 min
Result:	Showed EC_{50} value of 0.28 μM.

In Vivo

Dolcanatide (oral administration; 0.01 and 0.05 mg/kg; once) alleviates TNBS-induced rectal allodynia in rats[1].
Dolcanatide (oral administration; 0.01 and 0.05 mg/kg; once) alleviates stress-induced colorectal hypersensitivity (CRD) in rats[1].

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

Animal Model:	TNBS-induced rectal allodynia in rats[1]
Dosage:	0.01 and 0.05 mg/kg
Administration:	Oral administration; 0.01 and 0.05 mg/kg; once
Result:	Attenuated the TNBS-induced increase in the number of abdominal contractions (distending pressures up to 60 mmHg).

Animal Model:	Stress-induced visceral hypersensitivity in Wistar rats[1]
Dosage:	0.01 and 0.05 mg/kg
Administration:	Oral administration; 0.01 and 0.05 mg/kg; once
Result:	Resulted in a significant reduction in the rate of PRS (partial restraint stress)-induced abdominal contractions with increasing CRD (colorectal distension) pressures.

REFERENCES

[1]. Boulete IM, et al. Oral treatment with plecanatide or dolcanatide attenuates visceral hypersensitivity via activation of guanylate cyclase-C in rat models. World J Gastroenterol. 2018 May 7;24(17):1888-1900.

[2]. Shailubhai K, et al. Plecanatide and dolcanatide, novel guanylate cyclase-C agonists, ameliorate gastrointestinal inflammation in experimental models of murine colitis. World J Gastrointest Pharmacol Ther. 2015 Nov 6;6(4):213-22.

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