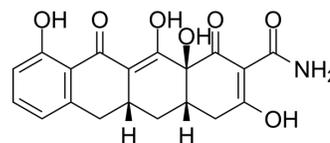


Incyclinide

Cat. No.:	HY-13648		
CAS No.:	15866-90-7		
Molecular Formula:	C ₁₉ H ₁₇ NO ₇		
Molecular Weight:	371		
Target:	MMP		
Pathway:	Metabolic Enzyme/Protease		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (269.54 mM)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent		1 mg	5 mg	10 mg
	Concentration	Mass			
	1 mM		2.6954 mL	13.4771 mL	26.9542 mL
	5 mM		0.5391 mL	2.6954 mL	5.3908 mL
	10 mM		0.2695 mL	1.3477 mL	2.6954 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 (6.74 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Incyclinide (CMT-3, COL-3) is a matrix metalloproteinase (MMP) inhibitor, thereby inducing extracellular matrix degradation, and inhibiting angiogenesis, tumor growth and invasion, and metastasis.

In Vitro

Incyclinide has been shown to experimentally suppress prostate cancer, colon adenocarcinoma and melanoma invasiveness in cell culture. Adding incyclinide at final concentrations of 5 to 20 μM inhibits MT1-MMP gelatinolytic and caseinolytic activity, blocks MT1-MMP activation of pro-MMP-2, and decreases invasiveness of HT-1080 fibrosarcoma cells^[1]. Incyclinide is an especially effective inhibitor of the growth and viability of filamentous fungi. Most of the MICs of CMT-3 against filamentous fungi are found to be between 0.25 and 8 μg/mL, and the inhibition of viability of these fungi by incyclinide is routinely higher than 90%^[2].
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Incyclinide inhibits tooth movement in the rat, probably by reducing the number of osteoclasts at the compression side. This might be due to induction of apoptosis in activated osteoclasts or reduced osteoclast migration. Reduced MMP activity by incyclinide might also directly inhibit degradation of the organic bone matrix^[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^[2]

Determination of *C. albicans* growth inhibition by CMT-3 is carried out by a modified turbidity assay. A series of tubes containing PDB (5 mL) and different concentrations of incyclinide (0, 0.125, 0.25, 0.5, 1.0, and 2.0 µg/mL) are each inoculated with a 100 µL suspension of *C. albicans* in late log phase to yield a final cell concentration of 10⁶/mL. The tubes are aerobically incubated at 35°C, and at each time point (0, 1, 2, 4, 6, 12, and 24 h), the turbidity in each tube is determined spectrophotometrically at 600 nm^[2].

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Animal Administration ^[3]

Rats: Eighteen Wistar rats receive a standardized orthodontic appliance at one side of the maxilla. During 14 days, three groups of six rats receive a daily dose of 0, 6 or 30 mg/kg incyclinide, and tooth displacement is measured. Thereafter, osteoclasts are counted on histological sections using an ED-1 staining. Multi- and mononuclear ED-1-positive cells in the PDL are also counted. In addition, sections are stained for MMP-9^[3].

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

CUSTOMER VALIDATION

- Sci Adv. 2023 Jan 20;9(3):eadd3867.
- Proc Natl Acad Sci U S A. 2023 Apr 25;120(17):e2218522120.
- EMBO Rep. 2023 Oct 11:e57228.
- Cells. 2021 Aug 22;10(8):2163.
- Molecules. 2023 May 23, 28(11), 4262.

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REFERENCES

- [1]. Lee HM, et al. CMT-3, a non-antimicrobial tetracycline (TC), inhibits MT1-MMP activity: relevance to cancer. *Curr Med Chem*. 2001 Feb;8(3):257-60.
- [2]. Liu Y, A chemically modified tetracycline (CMT-3) is a new antifungal agent. *Antimicrob Agents Chemother*. 2002 May;46(5):1447-54.
- [3]. Bildt MM, et al. CMT-3 inhibits orthodontic tooth displacement in the rat. *Arch Oral Biol*. 2007 Jun;52(6):571-8.

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

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