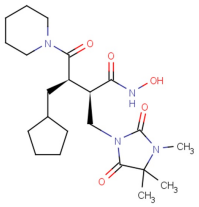
Data Sheet (Cat.No.T10817)

TargetMol
A DRUG SCREENING EXPERT

Cipemastat

Chemical Properties



CAS No.:	190648-49-8
Formula:	C22H36N4O5
Molecular Weight:	436.55
Appearance:	N/A
Storage:	0-4℃ for short term (days to weeks), or -20℃ for long term (months).

Biological Description

Description	Cipemastat is a competitive inhibitor of human collagenases 1, 2, and 3 (Kis: 3.0, 4.4, and 3.4 nM).
Targets(IC_{50})	collagenases 1: 3.0 nM (ki) collagenases 2: 4.4 nM (ki) collagenases 3: 3.4 nM (ki) stromelysins 1: 527 nM (ki) gelatinase A: 154 nM (ki) gelatinase B: 59.1 nM (ki)
In vitro	Cipemastat (Ro 32-3555) is also a potent inhibitor of rat collagenase (IC50: 44.7 nM). In vitro cartilage degradation ± inhibited IL-1a induced cartilage degradation in vitro in a concentration-dependent manner (IC50: 60 nM). The inhibition is not mediated by a cytotoxic action on explant chondrocytes. Cipemastat, at all concentrations tested, fails to modify glucose utilization when compared to explants cultured in the presence of IL-La alone.
In vivo	The amount of hydroxyproline in non-implanted cartilage is 119.3 nM/mg and this decreases in cartilages implanted in vehicle-dosed animals to 53.6 nM/mg over a fourteen-day period. Animals administered Cipemastat orally at doses of 2.5, 5, 10, and 25 mg/kg showed statistically increased levels of implanted cartilage hydroxyproline. Fourteen days after the second challenge injection of P. acnes, the area of cartilage most consistently affected by pannus is the lateral femoral condyle, which is the area analyzed. In arthritic animals, there is a significant decrease to a mean area of 0.086±0.01 mm2 (n=10). In non-arthritic animals, the mean cartilage area is 0.17±0.02 mm2 (n=5). The group of animals dosed with Cipemastat (50 mg/kg, p.o.) show a significantly greater area of cartilage with a mean value of 0.126±0.012 mm2 (n=9). The pannus area in vehicle-dosed animals is 0.099±0.017 mm2 and in Cipemastat dosed animals 0.102 mm2. Adjuvant arthritis injection of adjuvant-induced two phases of swelling of the injected paw in vehicle-dosed rats. The primary swelling phase occurred between days 0 to 5 and induced an increase in paw volume of 1.9±0.1 mL; the second phase occurs between days 9 to 14 and there was an increase in paw swelling of 0.98±0.08 mL. The group of animals dosed with dexamethasone (0.1 mg/kg) shows a significant reduction in both primary (0.2±0.03 mL) and secondary inflammation (0.07±0.08 mL) paw swelling as well as total inhibition of the lesion score.

Solubility Information

Solubility	< 1 mg/ml refers to the product slightly soluble or insoluble

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.291 mL	11.453 mL	22.907 mL
5 mM	0.458 mL	2.291 mL	4.581 mL
10 mM	0.229 mL	1.145 mL	2.291 mL
50 mM	0.046 mL	0.229 mL	0.458 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. The storage conditions and period of the stock solution: - 80 ℃ for 6 months; - 20 ℃ for 1 month. Please use it as soon as possible.

Reference

1. E J Lewis, et al. Ro 32-3555, an orally active collagenase inhibitor, prevents cartilage breakdown in vitro and in vivo. Br J Pharmacol. 1997 May; 121(3): 540–546.

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