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Zuschläge

- Mindermengenzuschlag
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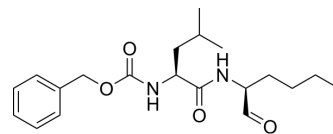
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Calpeptin

Cat. No.:	HY-100223		
CAS No.:	117591-20-5		
Molecular Formula:	C ₂₀ H ₃₀ N ₂ O ₄		
Molecular Weight:	362.46		
Target:	Cathepsin; Proteasome; Apoptosis		
Pathway:	Metabolic Enzyme/Protease; Apoptosis		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro	DMSO : 100 mg/mL (275.89 mM; Need ultrasonic)					
	Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg
		1 mM		2.7589 mL	13.7946 mL	27.5893 mL
		5 mM		0.5518 mL	2.7589 mL	5.5179 mL
		10 mM		0.2759 mL	1.3795 mL	2.7589 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 (6.90 mM); Clear solution					
	2. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (6.90 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	Calpeptin is a potent, cell penetrating calpain inhibitor, with an ID ₅₀ of 40 nM for Calpain I in human platelets ^[1] . Calpeptin is also an inhibitor of cathepsin K ^[2] .
IC ₅₀ & Target	cathepsin K
In Vitro	Calpeptin (0-100 nM, 24 hours) treatment suppresses the proliferation of both WI38 VA13 and IMR90 cells in a dose-dependent manner. Calpeptin (1000 pg/ml, 24 hours) inhibits IL-6-induced cell proliferation of lung fibroblasts ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only. Cell Proliferation Assay ^[3]

Cell Line:	WI38 VA13 and IMR90 cells
Concentration:	0-100 nM
Incubation Time:	24 hours
Result:	Suppressed the proliferation in a dose-dependent manner.

In Vivo

Calpeptin with Bleo (0.04 mg/mouse, i.p., 3 times weekly, 28 days) administration significantly inhibits the collagen deposition and increases of calpain activity in the NSC-125066 treated mouse lung tissues^[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	C57BL/6 female mice (Eight-week-old) ^[3] .
Dosage:	0.04 mg/mouse.
Administration:	Intraperitoneally three times weekly for 28 days (together with Bleo).
Result:	Inhibited the collagen deposition and increase of calpain activity in the NSC-125066 treated mouse lung tissues.

CUSTOMER VALIDATION

- ACS Cent Sci. February 2, 2022.
- J Nanobiotechnology. 2022 Mar 28;20(1):165.
- Cell Rep. 2023 Nov 18;42(12):113434.
- J Med Chem. 2023 Mar 15.
- PLoS Pathog. 2023 Jul 27;19(7):e1011550.

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REFERENCES

- [1]. Tsujinaka T, et al. Synthesis of a new cell penetrating calpain inhibitor (calpeptin). Biochem Biophys Res Commun. 1988 Jun 30;153(3):1201-8.
- [2]. Catalano JG, et al. Design of small molecule ketoamide-based inhibitors of cathepsin K. Bioorg Med Chem Lett. 2004 Feb 9;14(3):719-22.
- [3]. Tabata C, et al. The calpain inhibitor calpeptin prevents pulmonary fibrosis in mice. Clin Exp Immunol. 2010 Dec;162(3):560-7.

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

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