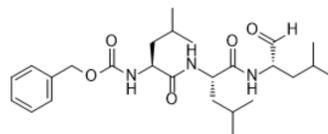


MG-132

Cat. No.:	HY-13259		
CAS No.:	133407-82-6		
Molecular Formula:	C ₂₆ H ₄₁ N ₃ O ₅		
Molecular Weight:	475.62		
Target:	Proteasome; Autophagy; Apoptosis		
Pathway:	Metabolic Enzyme/Protease; Autophagy; Apoptosis		
Storage:	Powder	-20°C	3 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro	DMSO : 100 mg/mL (210.25 mM; Need ultrasonic)					
	Preparing Stock Solutions	Solvent	Mass	1 mg	5 mg	10 mg
		Concentration				
		1 mM		2.1025 mL	10.5126 mL	21.0252 mL
		5 mM		0.4205 mL	2.1025 mL	4.2050 mL
	10 mM		0.2103 mL	1.0513 mL	2.1025 mL	
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 1.67 mg/mL (3.51 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: 1.67 mg/mL (3.51 mM); Suspended solution; Need ultrasonic Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 1.67 mg/mL (3.51 mM); Clear solution 					

BIOLOGICAL ACTIVITY

Description	MG-132 (Z-Leu-Leu-Leu-al) is a potent proteasome and calpain inhibitor with IC ₅₀ s of 100 nM and 1.2 μM, respectively. MG-132 effectively blocks the proteolytic activity of the 26S proteasome complex. MG-132, a peptide aldehyde, also is an autophagy activator. MG-132 also induces apoptosis ^{[1][2][3]} .
IC₅₀ & Target	IC ₅₀ : 100 nM (Proteasome), 1.2 μM (Calpain) ^{[1][3]}
In Vitro	MG-132 (Z-Leu-Leu-Leu-al) initiates neurite outgrowth in PC12 cells at a low concentration (30 nM) and is a very strong inhibitor of 20S proteasome ^[3] .

MG-132 (10 μ M; 1 hour) reverses the effects of TNF- α on I κ B degradation and NF- κ B activation in A549 cells^[4].
 MG-132 (0.75-5 μ M; 24 hours) potently induces p53-dependent apoptosis in KIM-2 cells by 26S proteasome inhibition^[5].
 MG-132 (10-40 μ M; 24 hours) significantly reduces the viability of C6 glioma cells in both time- and concentration-dependent manners and shows the IC₅₀ of 18.5 μ M at 24 hours^[6].
 MG-132 (18.5 μ M; 24 hours) induces down-regulation of anti-apoptotic proteins Bcl-2 and XIAP and up-regulates expression of pro-apoptotic protein Bax and caspase-3^[6].
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay^[3]

Cell Line:	C6 glioma cells
Concentration:	10, 20, 30, 40 μ M
Incubation Time:	24 hours
Result:	Significantly reduced the viability of C6 glioma cells beginning at 6 h in both time- and concentration-dependent manners and showed the IC ₅₀ of 18.5 μ M at 24 hours.

Western Blot Analysis^[3]

Cell Line:	A549 cells
Concentration:	10 μ M
Incubation Time:	1 hour
Result:	Reversed the effects of TNF- α on I κ B degradation and resulted in a reversal of TNF- α -induced NF- κ B activation.

In Vivo

MG132 (10 mg/kg; i.p.; daily for 25 days starting 5 days after EC9706 cells injection) significantly inhibits tumor growth of the EC9706 xenograft without causing toxicity to mice^[7].
 MG-132 (1 mg/kg; i.v.; twice a week for 4 weeks) shows potent tumor inhibitory effect against mice bearing HeLa tumors^[8].
 MG-132 (1-10 μ g/kg/24 hours; subcutaneously implanted osmotic pumps; for 8 days) greatly increases the expression levels of β -dystroglycan, α -dystroglycan, α -sarcoglycan, and dystrophin in skeletal muscle lysates in mice (six-month-old male C57BL/10ScSn DMD mdx mice)^[9].
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	5- to 6-weeks old female athymic nude mice (EC9706 xenograft)
Dosage:	10 mg/kg
Administration:	I.p.; daily for 25 days starting 5 days after EC9706 cells injection
Result:	Significantly inhibited tumor growth of the EC9706 xenograft without causing toxicity to the mice.

Animal Model:	Five-week-old female C.B-17/lcr-scid/scidJcl mice (bearing HeLa cells) ^[8]
Dosage:	1 mg/kg
Administration:	Intravenous injection; twice a week for 4 weeks
Result:	The growth inhibition rates in HeLa tumors was 49% compared to the control.

- Nature. 2021 Nov;599(7885):491-496.
- Cell. 2023 Feb 16;186(4):803-820.e25.
- Science. 2020 Dec 4;370(6521):eaay2002.
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Caution: Product has not been fully validated for medical applications. For research use only.

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