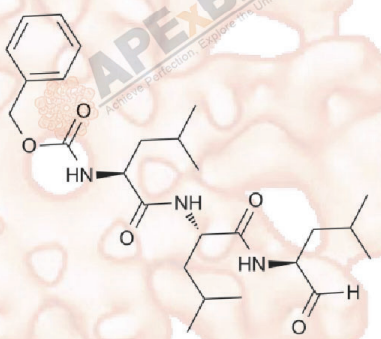
Product Data Sheet

MG-132



Cat. No.: A2585

CAS No.: 133407-82-6

Formula: C26H41N3O5

M.Wt: 475.6

Synonyms: MG132,Z-LLL-al,Z-Leu-Leu-Leu-CHO

Target: Ubiquitination/ Proteasome

Pathway: Proteasome

Storage: Store at -20°CThe product is not stable in solution, please dissolve it immediately before use.

Solvent & Solubility

In Vitro

⩾23.78mg/mL in DMSO

Preparing Stock Solutions

Concentration \ Mass / Solvent	1mg	5mg	10mg
1 mM	2.1026 mL	10.5130 mL	21.0261 mL
5 mM	0.4205 mL	2.1026 mL	4.2052 mL
10 mM	0.2103 mL	1.0513 mL	2.1026 mL

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

Biological Activity

Shortsummary	Proteasome inhibitor, Cell permeable, reversible
IC_{50} & Target	100 nM (Proteasome)

In Vitro

Cell Viability Assay

Cell Line:	A549 cells, human cervical HeLa cancer cells, HT-29 colon cancer cells, MG-63 osteosarcoma cell etc.
Preparation method：	The solubility of this compound in DMSO is >23.8mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.

	Reacting conditions:	24-48 h
	Applications:	MG-132 is a membrane-permeable proteasome inhibitor. It is used to Induce neurite outgrowth in PC12 cells at 10 μM. MG132 dose dependently inhibited the growth of A549 cells with an IC50 of approximately 20 μM. MG-132 also reduced the growth of human cervical HeLa cancer cells with an IC50 of approximately 5 μM. Treatment with 0.5 μM MG-132 significantly decreased the growth of HeLa cells and induced cell death as well [3]. MG-132 inhibits the growth of HT-29 colon cancer cells via inducing G2/M cell cycle arrest [4], causes MG-63 osteosarcoma cell arrest at G2/M phase [5], prolongs the duration of G0/G1 arrest in MnCl2-treated A549 cells and induces a G1 arrest in gastric carcinoma cells [6].
In Vivo	**Animal experiment**	
	Animal models:	C57BL mice
	Dosage form:	~10 ug/kg/day, injection from tail vein or belly
	Applications:	
	Preparation method:	Powder dissolved in DMSO to prepare stock solution with 10 mg/ml, and working solution is diluted by PBS or Saline. pH equals to 7.
	Other notes:	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

Product Citations

1.Yuan NN, Cai CZ, et al. "Canthin-6-One Accelerates Alpha-Synuclein Degradation by Enhancing UPS Activity: Drug Target Identification by CRISPR-Cas9 Whole Genome-Wide Screening Technology." Front Pharmacol. 2019 Jan 28;10:16.PMID:30745870

2. Ju L, Han J, et al. "Obesity-associated inflammation triggers an autophagy-lysosomal response in adipocytes and causes degradation of perilipin 1."Cell Death Dis. 2019 Feb 11;10(2):121.PMID:30741926

3. Cui-ZanCai, He-FengZhou, et al. "Natural alkaloid harmine promotes degradation of Alpha-synuclein via PKA-mediated ubiquitin-proteasome system activation." Phytomedicine. Available online 30 January 2019, 152842.

4. Lee CH, Yang JR, et al. "Novel STAT3 Inhibitor LDOC1 Targets Phospho-JAK2 for Degradation by Interacting with LNX1 and Regulates the Aggressiveness of Lung Cancer." Cancers (Basel). 2019 Jan 9;11(1). pii: E63.PMID:30634502

5. Dongdong Zhao, Jian Meng, et al. "RPS23RG1 is Required for Synaptic Integrity and Rescues Alzheimer's Associated Cognitive Deficits." Biological Psychiatry Available online 25 August 2018.

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References

1. Ling YH, Liebes L, Zou Y and Perez-Soler R. Reactive oxygen species generation and mitochondrial dysfunction in the apoptotic response to Bortezomib, a novel proteasome inhibitor, in human H460 non-small cell lung cancer cells, 2003; 278: 33714–33723.

2. Qiu JH, Asai A, Chi S, et al. Proteasome inhibitors induce cytochrome c-caspase-3-like protease-mediated apoptosis in cultured cortical neurons. J Neurosci 2000; 20: 259–265.

3. YH. Han, WH. Park, MG132 as a proteasome inhibitor induces cell growth inhibition and cell death in A549 lung cancer cells via influencing reactive oxygen species and GSH level, Human and Experimental Toxicology, 29(7) 607–614.
4. Wu WK, Wu YC, Yu L, et al. Induction of autophagy by proteasome inhibitor is associated with proliferative arrest in colon cancer cells. Biochem Biophys Res Commun 2008; 374: 258–263.
5. Yan XB, Yang DS, Gao X, et al. Caspase-8 dependent osteosarcoma cell apoptosis induced by proteasome inhibitor MG132. Cell Biol Int 2007; 31: 1136–1143.
6. ZhangW, Tong Q, Li S, Wang X andWang Q.MG-132 inhibits telomerase activity, induces apoptosis and G(1) arrest associated with upregulated p27kip1 expression and downregulated survivin expression in gastric carcinoma cells. Cancer Invest 2008; 26:1032–1036.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most APExBIO products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

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