MG-132 ≥ 98%

BC9001

Storage

Store at or below -20°C.

Contents

- Product Manual
- MG-132 ≥98%

Shipping Condition

Ship with ice pack.

Description

MG-132 (carbobenzoxy-Leu-Leu-leucinal) as a peptide aldehyde effectively blocks the proteolytic activity of proteasome complex. Proteasome inhibitors including MG-132 have been shown to induce apoptotic cell death through formation of ROS. ROS formation and GSH depletion due to proteasome inhibitors may cause mitochondrial dysfunction and subsequent cytochrome c release, which leads to cell viability loss.

MG-132 dose dependently inhibited the growth of A549 cells with an IC_{50} of approximately 20 μM. MG132 also reduced the growth of human cervical HeLa cancer cells with an IC_{50} of approximately 5 μM. Treatment with 0.5 μM MG-132 significantly decreased the growth of HeLa cells and induced cell death as well. Cell growth inhibition by MG132 depends on incubation doses of that and cell types.

MG-132 significantly induced a G1 phase arrest of the cell cycle. It inhibits the growth of HT-29 colon cancer cells via inducing G2/M cell cycle arrest4, causes MG-63 osteosarcoma cell arrest at G2/M phase5, prolongs the duration of G0/G1 arrest in $MnCl_2$-treated A549 cells and induces a G1 arrest in gastric carcinoma cells. Deregulation of the ubiquitin-proteasomal system by MG132 can result in different cell cycle phase arrests depending on various cancer cell lines.

Proteasome inhibitors including MG-132 have been shown to induce apoptotic cell death through formation of ROS. MG-132 inhibited the growth of human A549 cells via inducing the cell cycle arrest as well as triggering apoptosis, which was in part correlated with the changes of ROS and GSH levels.

Chemical Properties

M.W	475.6
CAS No	133407-82-6
Formula	$C_{26}H_{41}N_3O_5$
Synonyms	Z-LLL-al,Z-Leu-Leu-Leu-CHO
Solubility	≥23.78 mg/mL in DMSO; insoluble in H2O; ≥49.5 mg/mL in EtOH

Biological Activity

Description	MG-132 is an inhibitor of proteasome with IC_{50} of 100 nM, and also inhibits calpain with IC_{50} of 1.2 μM.
Targets	Proteasome
IC_{50}	100 nM

Animal Experiments

Animal models	C57BL mice
Dosage	Proteasome
Administration	100 nM
In vivo	Administration of MG-132 effectively rescues the expression levels and plasma membrane localization of dystrophin, β-dystroglycan, α-bdystroglycan, and α-sarcoglycan in skeletal muscle fibers from mdx mice, reduces muscle membrane damage, and ameliorates the histopathological signs of muscular dystrophy. MG-132 treatment significantly reduces immobilization-induced skeletal muscle atrophy in mice, by downregulating the muscle-specific ubiquitin ligases atrogin-1/MAFbx and MuRF-1 mRNA.

Related Products

Product Name	Cat No
Albumin, (IgG, Fattu Acid and Protease Free)	A0100
NP-40 Lysis Buffer (2X)	N1200
RIPA Cell Lysis Buffer (1X) with EDTA	R4100
Xert Protease Inhibitor Cocktail Solution (100X)	P3100
Xpert Prestained Protein Marker (6.5-240 kDa)	P8502
Xpert Plus Prestained Protein Marker (10-260 kDa)	P8507
TBS Buffer, 20X, pH 7.4	T8054
West-Ez Stripping buffer	S2100
Goat anti-Rabbit IgG(H+L)-HRP, 1mg/ml	SA002
Rabbit anti-Goat IgG(H+L)-HRP, 1mg/ml	SA007
Tween 20, Molecular Biology Grade	T9100
West-Q Pico Dura ECL Solution	W3653
West-Q Femto ECL Solution	W3800

GenDEPOT PO Box 454 Barker, Tx 77413 tech@gendepot.com