**MG-132, proteasome inhibitor ab141003**

**Overview**

**Product name**
MG-132, proteasome inhibitor

**Description**
Potent, reversible proteasome inhibitor

**Biological description**
Potent, reversible, proteasome inhibitor (K_i = 4 nM). Inhibits NF-kB activation by preventing IκB degradation (IC_{50} = 3 μM). Anti-cancer properties *in vitro* and *in vivo*. Cell-permeable.

Also available as ethanol solution (ab147047).

**Purity**
> 98%

**Properties**

**Molecular weight**
475.62

**Chemical structure**

![Chemical structure](image)

**Molecular formula**
C_{26}H_{41}N_{3}O_{5}

**CAS Number**
133407-82-6

**Sequence**
LLL (Modifications: N-terminal benzyloxycarbonyl; C-terminal aldehyde)

**PubChem identifier**
462382

**Storage instructions**
Store at -20°C. It is important to note that this is air sensitive and impurities can occur as a result of air oxidation. Store under desiccating conditions.

**Solubility overview**
Soluble in DMSO to 100 mM but unstable for prolonged periods. Soluble in ethanol to 100 mM.

**Handling**
Wherever possible, you should prepare and use solutions on the same day. However, if you need to make up stock solutions in advance, we recommend that you store the solution as aliquots in tightly sealed vials at -20°C. Generally, these will be useable for up to one week. Before use, and prior to opening the vial we recommend that you allow your product to equilibrate to room temperature for at least 1 hour.

Need more advice on solubility, usage and handling? Please visit our frequently asked questions (FAQ) page for more details.

**SMILES**
CC(C)CC(C=O)NC(=O)C(C(C)C)NC(=O)C(C(C)C)NC(=O)OCC1=CC=CC=C1

**Source**
Synthetic
Western blot - MG-132 (ab141003)

All lanes: Anti-SQSTM1 / p62 (phospho S349) antibody [EPR20451] (ab211324) at 1/1000 dilution

Lane 1: Untreated HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate

Lane 2: HeLa whole cell lysate treated with 2µM MG-132 (ab141003) for 18 hours

Lane 3: HeLa whole cell lysate treated with 2µM MG-132 (ab141003) for 18 hours, then treated with Alkaline Phosphatase for 1 hour

Lysates/proteins at 10 µg per lane.

Secondary

All lanes: Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 62 kDa

why is the actual band size different from the predicted?

Exposure time: 1 minute

Blocking/Dilution buffer: 5% NFDM/TBST.

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cells, treated with 2µM MG-132 (ab141003) for 18 hours or untreated, labeling SQSTM1 / p62 (phospho S349) with ab211324 at 1/100 dilution, followed by Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) secondary antibody at 1/200 dilution (green).

Confocal image showing cytoplasmic staining on HeLa cell line. The expression increased after treatment with 2µM MG-132 (ab141003) for 18 hours.

The nuclear counterstain is DAPI (blue).

Tubulin is detected with ab195889 (Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594)) at 1/200 dilution (red).
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) at 1/1000 dilution.

Flow cytometric analysis of 4% paraformaldehyde-fixed HeLa (Human epithelial cell line from cervix adenocarcinoma) cells, treated with 2μM MG-132 (ab141003) for 18 hours (red) or untreated (green), labeling SQSTM1 / p62 (phospho S349) with ab211324 at 1/500 dilution compared with a rabbit monoclonal IgG isotype control (ab172730; black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (Alexa Fluor® 488) at 1/2000 dilution was used as the secondary antibody.

SQSTM1 / p62 (phospho S349) was immunoprecipitated from 0.35 mg of HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate treated with 2μM MG-132 (ab141003) for 18h with ab211324 at 1/30 dilution.

Western blot was performed from the immunoprecipitate using ab211324 at 1/1000 dilution.

VeriBlot for IP secondary antibody (HRP) (ab131366), was used as secondary antibody at 1/10000 dilution.

Lane 1: HeLa treated with 2μM MG-132 (ab141003) for 18h whole cell lysate, 10 µg (Input).
Lane 2: ab211324 IP in HeLa treated with 2μM MG-132 (ab141003) for 18h whole cell lysate.
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab211324 in HeLa treated with 2μM MG-132 (ab141003) for 18h whole cell lysate.

Blocking and dilution buffer: 5% NFDM/ TBST.
All lanes: Anti-SQSTM1/p62 (phospho S349) antibody [EPR20451] (ab211324) at 1/1000 dilution

Lane 1: Untreated C6 (Rat glial tumor cell line) whole cell lysate
Lane 2: C6 whole cell lysate treated with 2µM MG-132 (ab141003) for 18 hours

Lysates/proteins at 10 µg per lane.

Secondary
All lanes: Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 62 kDa why is the actual band size different from the predicted?

Exposure time: 1 minute

Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes: Anti-SQSTM1/p62 (phospho S349) antibody [EPR20451] (ab211324) at 1/1000 dilution

Lane 1: Untreated NIH/3T3 (Mouse embryonic fibroblast cell line) whole cell lysate
Lane 2: NIH/3T3 whole cell lysate treated with 2µM MG-132 (ab141003) for 18 hours

Lysates/proteins at 10 µg per lane.

Secondary
All lanes: Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution
Observed band size: 62 kDa why is the actual band size different from the predicted?

Exposure time: 4 seconds

Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes: Anti-HIF-1 alpha antibody [EPR16897] (ab179483) at 0.163 µg/ml

Lane 1: Untreated C6 (rat glial tumor glial cell), whole cell lysate
Lane 2: C6 treated with 400 µM CoCl2 and 200 µM MG-132 (ab141003) for 4 hours

Lysates/proteins at 10 µg per lane.

Secondary
All lanes: Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Observed band size: 110 kDa why is the actual band size different from the predicted?

Exposure time: 26 seconds

Blocking and diluting buffer: 5% NFDM/TBST.

The expression of HIF-1 alpha is induced by CoCl2 and maintained by MG-132 (PMID: 15836611).
All lanes: Anti-YTHDF2 antibody [EPR20318] (ab220163) at 1/5000 dilution

Lane 1: Untreated HT-1080 (human fibrosarcoma epithelial cell) whole cell lysate at 20 µg
Lane 2: HT-1080 treated with 10µM MG-132 (ab141003) for 4 hours, whole cell lysate at 10 µg

Secondary
All lanes: Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Exposure time: 103 seconds

Blocking/diluting buffer and concentration: 5% NFDM/TBST.

All lanes: Anti-ATF-4 antibody [EPR18111] (ab184909) at 1/1000 dilution

Lane 1: Untreated HepG2 (Human liver hepatocellular carcinoma cell line) whole cell lysate (control)
Lane 2: HepG2 (Human liver hepatocellular carcinoma cell line) treated with 5 µM MG-132 (ab141003) and 3 µg/ml tunicamycin (ab120296) for 6 hours whole cell lysate

Lysates/proteins at 20 µg per lane.

Secondary
All lanes: Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 50 kDa why is the actual band size different from the predicted?

Exposure time: 15 seconds

Blocking/Dilution buffer: 5% NFDM/TBST.

The molecular weight observed is consistent with what has been described in the literature (PMID: 22095285).

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