Cycloheximide

#2112

Store at -20°C

☑ 1 g

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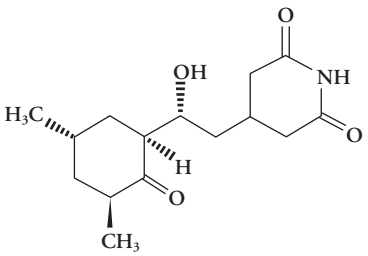
For Research Use Only. Not For Use In Diagnostic Procedures.

Background: Cycloheximide is a protein synthesis inhibitor in eukaryotes. Although its precise mechanism of action has yet to be fully elucidated, it has been shown to inhibit translation elongation through binding to the E-site of the 60S ribosomal unit and interfering with deacetylated tRNA (1-3). Although not all cell types are equally sensitive to the apoptosis-inducing effects of cycloheximide, it has been shown to induce cell death in T cells through a FADD-dependent mechanism (4). In addition, cycloheximide and Tumor Necrosis Factor possess a synergistic cytotoxicity (5,6), and consequently they are routinely used together to induce cell death. Investigators have demonstrated that cycloheximide blocks bortezomib-stimulated protein ubiquitination (7).

Molecular Formula: $C_{15}H_{23}NO_4$

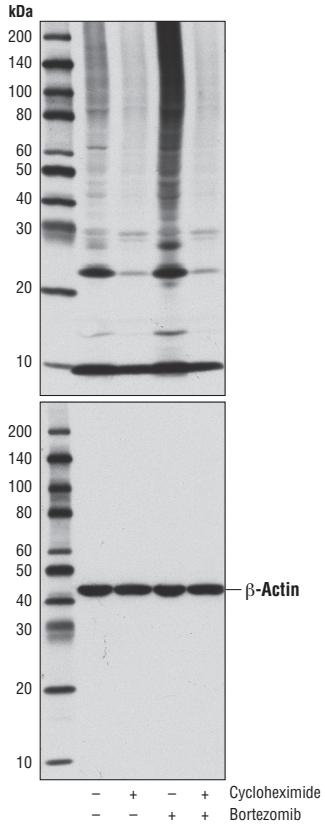


Molecular Weight: 281.3 g/mol

Solubility: Soluble in DMSO, EtOH, or MeOH.

Purity: >90%

Directions for Use: Cycloheximide is supplied as a lyophilized powder. For a 10 mg/ml stock, carefully weigh out and reconstitute 50 mg in 5 ml DMSO or EtOH. Working concentrations and length of treatments vary depending on the desired effect, but it is typically used at 5-50 µg/ml for 4-24 hours.

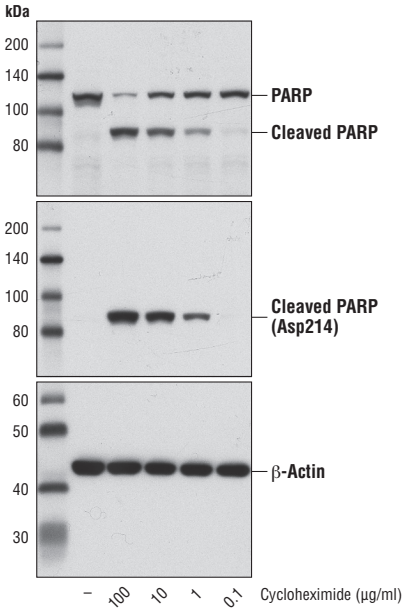


Western blot analysis of extracts from Jurkat cells, untreated (-), or treated with Cycloheximide (50 µg/ml, 24 hr; +), Bortezomib #2204 (10 nM, 24 hr; +), or both, using Ubiquitin Antibody #3933 (upper) or β-Actin (D6A8) Rabbit mAb #8457 (lower).

Storage: Store lyophilized or in solution at -20°C, desiccated. Protect from light. In lyophilized form, the chemical is stable for 24 months. Once in solution, use within 3 months to prevent loss of potency. Aliquot to avoid multiple freeze/thaw cycles.

Background References:

(1) Schneider-Poetsch, T. et al. (2010) *Nat Chem Biol* 6, 209-217.
(2) Klinge, S. et al. (2011) *Science* 334, 941-8.
(3) Pestova, T.V. and Hellen, C.U. (2003) *Genes Dev* 17, 181-6.
(4) Tang, D. et al. (1999) *J Biol Chem* 274, 7245-52.
(5) Nolop, K.B. and Ryan, U.S. (1990) *Am J Physiol* 259, L123-9.
(6) Reid, T.R. et al. (1989) *J Biol Chem* 264, 4583-9.
(7) Mimnaugh, E.G. et al. (2004) *Mol Cancer Ther* 3, 551-66.



Western blot analysis of extracts from Jurkat cells, untreated (-) or treated with increasing concentrations of Cycloheximide (24 hr), using PARP Antibody #9542 (upper), Cleaved PARP (Asp214) (D64E10) XP® Rabbit mAb #5625 (middle), or β-Actin (D6A8) Rabbit mAb #8457 (lower).

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide

Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.