Revision 3

Store at -20C

#2112

Cycloheximide

1 g

Cell Signaling TECHNOLOGY®

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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

Purity

>90%

CAS

66-81-9

Solubility

Soluble in DMSO at 25mg/ml and in H2O at 20mg/ml.

Storage

Store lyophilized or in solution at -20ºC, 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.

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. Soluble in DMSO, EtOH, or MeOH.

Wear personal protective equipment. Do not empty product into drains. Do not handle until all safety precautions have been read and understood.

Safety Information: Cycloheximide is suspected of causing genetic defects. It may cause adverse reproductive effects - such as birth defect, miscarriages, or infertility. Avoid contact during pregnancy and while nursing. If exposed or concerned, get medical advice. See Safety Data Sheet (SDS).

Background References

1. Schneider-Poetsch, T. et al. (2010) *Nat Chem Biol* 6, 209-217.
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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.

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