

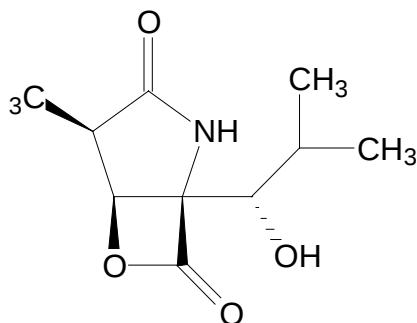
Product Information

clasto-Lactacystin β -lactone

Product Number **L 7035**

Storage Temperature -20°C

CAS[#] 154226-60-5



Product Description

Molecular Formula: $\text{C}_{10}\text{H}_{15}\text{NO}_4$

Molecular Weight: 213.2

clasto-Lactacystin β -lactone is a cell permeable, irreversible proteasome inhibitor. It has been found to be approximately 20-fold more potent than lactacystin. clasto-Lactacystin β -lactone was found to irreversibly inhibit protein breakdown and the chymotryptic, tryptic, and peptidylglutamyl activities of purified 20 S and 26 S particles at different rates. It does not inhibit lysosomal protein degradation in the cell.¹

Lactacystin undergoes spontaneous hydrolysis in aqueous solution at pH 8 to N-acetyl-L-cysteine and the inactive lactacystin analog, clasto-lactacystin dihydroxy acid. Mechanistic studies have concluded that clasto-lactacystin β -lactone is an intermediate formed during lactacystin hydrolysis and is the active species responsible for proteasome inhibition.²

clasto-lactacystin β -lactone also induces neurite outgrowth in Neuro 2A mouse neuroblastoma cells and inhibits progression of synchronized Neuro 2A cells and MG-63 human osteosarcoma cells beyond the G1 phase of the cell cycle.³

The properties and actions of clasto-lactacystin β -lactone have been reviewed.⁴

Precautions and Disclaimer

This product is packaged as a thin film in the vial. The vial may appear to be empty. It is for laboratory research use only. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

The product is soluble in DMSO (25 mg/ml). The DMSO stock solution may be stored for 1 week at -20°C or up to one month at -80°C . There may be some product degradation after that time. Once stock solutions are diluted into aqueous systems, the resulting solution should be used immediately to minimize hydrolysis. Hydrolysis is accelerated by acidic or alkaline conditions.

Storage/Stability

It is recommended to store the product at -20°C .

References

1. Craiu, A., et al., Lactacystin and clasto-lactacystin β -lactone modify multiple proteasome β -subunits and inhibit intracellular protein degradation and major histocompatibility complex class I antigen presentation. *J. Biol. Chem.*, **272**, 13437-13445 (1997).
2. Dick, L.R., et al., Mechanistic studies on the inactivation of the proteasome by lactacystin: a central role for clasto-lactacystin β -lactone. *J. Biol. Chem.*, **271**, 7273-6 (1996).
3. Fenteany, G., et al., A β -lactone related to lactacystin induces neurite outgrowth in a neuroblastoma cell line and inhibits cell cycle progression in an osteosarcoma cell line. *Proc. Nat. Acad. Sci., USA*, **91**, 3358-62 (1994).
4. Fenteany, G., et al., Lactacystin, Proteasome Function, and Cell Fate. *J. Biol. Chem.*, **273**, 8545-8548 (1998).

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