

**Product Name:** Lactacystin

**Catalog No.:** 2267

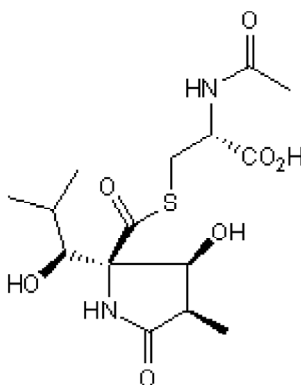
**Batch No.:** 7

CAS Number: 133343-34-7

IUPAC Name: (2*R*,3*S*,4*R*)-3-Hydroxy-2-[(1*S*)-1-hydroxy-2-methylpropyl]-4-methyl-5-oxo-2-pyrrolidinecarboxy-*N*-acetyl-L-cysteine thioester

## 1. PHYSICAL AND CHEMICAL PROPERTIES

<b>Batch Molecular Formula:</b>	C <sub>15</sub> H <sub>24</sub> N <sub>2</sub> O <sub>7</sub> S
<b>Batch Molecular Weight:</b>	376.42
<b>Physical Appearance:</b>	Clear film
<b>Solubility:</b>	water to 10 mM
<b>Storage:</b>	Store at -20°C
<b>Batch Molecular Structure:</b>	



## 2. ANALYTICAL DATA

<b>HPLC:</b>	Shows 94.7% purity
<b>Mass Spectrum:</b>	Consistent with structure

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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**Description:**

Lactacystin is a cell-permeable, potent and selective proteasome inhibitor. A Streptomyces metabolite that is thought to bind irreversibly to the active site N-terminal threonine residue of the catalytic  $\beta$ -subunit of the 20S proteasome, thereby inhibiting its chymotrypsin and trypsin-like activities. Induces neurite outgrowth in Neuro 2a neuroblastoma cells and has been reported to induce apoptosis in human monoblast U937 cells. Also inhibits NF- $\kappa$ B activation ( $IC_{50} = 10 \mu M$ ).

**Physical and Chemical Properties:**

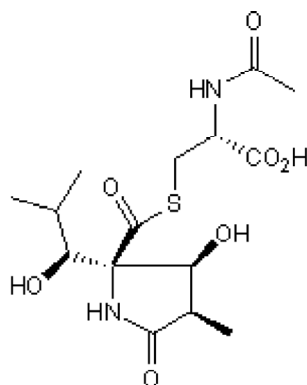
Batch Molecular Formula:  $C_{15}H_{24}N_2O_7S$

Batch Molecular Weight: 376.42

Physical Appearance: Clear film

**Minimum Purity:**  $\geq 95\%$

**Batch Molecular Structure:**



**Storage:** Store at  $-20^{\circ}C$

**Solubility & Usage Info:**

water to 10 mM

This product is supplied in lyophilized form. It may appear as a solid, gel or film and be very hard to visualize. Solutions should be made by adding solvent directly to the vial. The vial should then be vortexed vigorously to ensure the product has completely dissolved.

**Stability and Solubility Advice:**

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a  $45-60^{\circ}C$  water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. \*Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

**SOLIDS:** Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

**SOLUTIONS:** We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at  $-20^{\circ}C$  or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

**References:**

**Bellas et al** (1997) Inhibition of NF- $\kappa$ B activity induces apoptosis in murine hepatocytes. *Am.J.Pathol.* **151** 891. PMID: 9327720.

**Fenteany et al** (1995) Inhibition of proteasome activities and subunit-specific amino-terminal threonine modification by lactacystin. *Science* **268** 726. PMID: 7732382.

**Omura et al** (1991) Lactacystin, a novel microbial metabolite, induces neuritogenesis of neuroblastoma cells. *J.Antibiot.* **44** 113. PMID: 1848215.

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