

Hello Bio, Inc.  
304 Wall St., Princeton, NJ 08540 USA

T. 609-683-7500  
F. 609-228-4994

customercare-usa@hellobio.com



## DATASHEET

Lactacystin

### Product overview

<b>Name</b>	Lactacystin
<b>Cat No</b>	HB3953
<b>Purity</b>	>98%
<b>Description</b>	Potent, selective, irreversible proteasome inhibitor

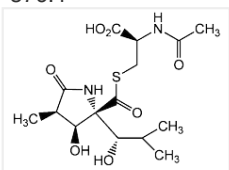
### Biological Data

<b>Biological description</b>	Potent, selective, cell-permeable and irreversible proteasome inhibitor. Thought to irreversibly bind the active site N-terminal threonine residue of the 20S proteasome catalytic $\beta$ -subunit to inhibit chymotrypsin and trypsin-like activities and block proteasome activity. Shows anticancer and anti-adipogenic activity, induces neuritogenesis, apoptosis and autophagy. Also inhibits NF- $\kappa$ B activation
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### Solubility & Handling

<b>Storage instructions</b>	+4 °C
<b>Solubility overview</b>	Soluble in water, and in DMSO
<b>Important</b>	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

### Chemical Data

<b>Chemical name</b>	(2R,3S,4R)-3-Hydroxy-2-[(1S)-1-hydroxy-2-methylpropyl]-4-methyl-5-oxo-2-pyrrolidinecarboxy-N-acetyl-L-cysteine thioester
<b>Molecular Weight</b>	376.4
<b>Chemical structure</b>	
<b>Molecular Formula</b>	C <sub>15</sub> H <sub>24</sub> N <sub>2</sub> O <sub>7</sub> S
<b>CAS Number</b>	133343-34-7
<b>PubChem identifier</b>	6610292
<b>SMILES</b>	O=C1N[C@@]([C@@](SC[C@H](NC(C)=O)[C@](O)=O)=O)([C@H](C(C)C)O)[C@@H](O)[C@H]1C
<b>Source</b>	Streptomyces lactacystinnaeus
<b>InChi</b>	InChI=1S/C15H24N2O7S/c1-6(2)10(19)15(11(20)7(3)12(21)17-15)14(24)25-5-9(13(22)23)16-8(4)18/h6-7,9-11,19-20H,5H2,1-4H3,(H,16,18)(H,17,21)(H,22,23)/t7-,9+,10+,11+,15-/m1/s1
<b>InChiKey</b>	DAQAKHDKYAWHCG-MJZHQVMOSA-N
<b>MDL number</b>	MFCD01076525
<b>Appearance</b>	White to off-white solid

### References

Lactacystin: first-in-class proteasome inhibitor still excelling and an exemplar for future antibiotic research

Omura and Crump (2019) J Antibiot (Tokyo) 72(4)

**PubMedID** [30755736](#)

### **Lactacystin, a novel microbial metabolite, induces neuritogenesis of neuroblastoma cells**

Omura et al (1991) J Antibiot (Tokyo) 44(1)

**PubMedID** [1848215](#)

### **Inhibition of proteasome activities and subunit-specific amino-terminal threonine modification by lactacystin**

Fenteany et al (1995) Science 268(5211)

**PubMedID** [7732382](#)

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