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DATASHEET

Lactacystin

Product overview

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

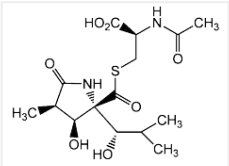
Biological Data

Biological description	Potent, selective, cell-permeable and irreversible proteasome inhibitor. Thought to irreversibly bind the active site N-terminal threonine residue of the 20S proteasome catalytic β-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-κB activation

Solubility & Handling

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

Chemical Data

Chemical name	(2R,3S,4R)-3-Hydroxy-2-[(1S)-1-hydroxy-2-methylpropyl]-4-methyl-5-oxo-2-pyrrolidinecarboxy-N-acetyl-L-cysteine thioester
Molecular Weight	376.4
Chemical structure	
Molecular Formula	$C_{15}H_{24}N_2O_7S$
CAS Number	133343-34-7
PubChem identifier	6610292
SMILES	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
Source	Streptomyces lactacystinnaeus
InChi	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
InChiKey	DAQAKHDKYAWHCG-MJZHQVMOSA-N
MDL number	MFCD01076525
Appearance	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 Antbiot (Tokyo) 72(4)
PubMedID 30755736

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

Omura et al (1991) J Antbiot (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