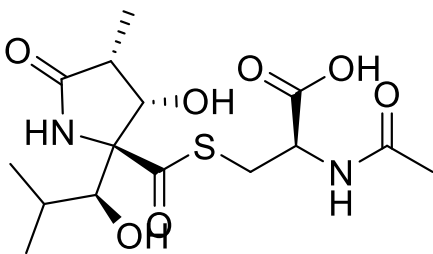


# Product data sheet



MedKoo Cat#: 540261 Name: Lactacystin CAS: 133343-34-7 Chemical Formula: C <sub>15</sub> H <sub>24</sub> N <sub>2</sub> O <sub>7</sub> S Exact Mass: 376.1304 Molecular Weight: 376.424		
Product supplied as:	Powder	
Purity (by HPLC):	≥ 98%	
Shipping conditions	Ambient temperature	
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

## 1. Product description:

Lactacystin is a proteasome inhibitor found in Streptomyces. It increases the Bax/Bcl-2 ratio and inhibits proliferation of glioma cells, inhibits growth and migration of smooth muscle cells, and suppresses infiltration of neutrophils and decreases levels of ICAM-1 in liver injury models.

## 2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

## 3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	20.0	53.13
DMSO	20.0	53.13
Ethanol	1.0	2.66
Water	6.88	18.28

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.66 mL	13.28 mL	26.57 mL
5 mM	0.53 mL	2.66 mL	5.31 mL
10 mM	0.27 mL	1.33 mL	2.66 mL
50 mM	0.05 mL	0.27 mL	0.53 mL

## 5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

## 6. Recommended literature which reported protocols for in vitro and in vivo study

### In vitro study

1. Bellas RE, FitzGerald MJ, Fausto N, Sonenshein GE. Inhibition of NF-kappa B activity induces apoptosis in murine hepatocytes. Am J Pathol. 1997 Oct;151(4):891-6. PMID: 9327720; PMCID: PMC1858057.
2. Fenteany G, Standaert RF, Lane WS, Choi S, Corey EJ, Schreiber SL. Inhibition of proteasome activities and subunit-specific amino-terminal threonine modification by lactacystin. Science. 1995 May 5;268(5211):726-31. doi: 10.1126/science.7732382. PMID: 7732382.

### In vivo study

1. Repova K, Stanko P, Baka T, Krajcirovicova K, Aziriova S, Hrenak J, Barta A, Zorad S, Reiter RJ, Adamcova M, Simko F. Lactacystin-induced kidney fibrosis: Protection by melatonin and captopril. Front Pharmacol. 2022 Sep 13;13:978337. doi: 10.3389/fphar.2022.978337. PMID: 36176443; PMCID: PMC9513205.
2. Deneyer L, Massie A, Bentea E. Ketamine Does Not Exert Protective Properties on Dopaminergic Neurons in the Lactacystin Mouse Model of Parkinson's Disease. Front Behav Neurosci. 2018 Sep 19;12:219. doi: 10.3389/fnbeh.2018.00219. PMID: 30283309; PMCID: PMC6156534.

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## 7. Bioactivity

### Biological target:

Lactacystin, an antibiotic Streptomyces spp. metabolite, is a potent and selective proteasome inhibitor with an  $IC_{50}$  of 4.8  $\mu M$  for 20S proteasome.

### In vitro activity

Treatment of NMH cells with the proteasome inhibitor lactacystin, which prevents degradation of the NF-kappa B inhibitor proteins I kappa B, induced apoptosis.

Reference: Am J Pathol. 1997 Oct;151(4):891-6. <https://pubmed.ncbi.nlm.nih.gov/9327720/>

### In vivo activity

Six weeks of lactacystin administration to rats increased their average systolic blood pressure (SBP). In the kidneys, lactacystin reduced glomerular density, increased the glomerular tuft area, and enhanced hydroxyproline concentrations.

Reference: Front Pharmacol. 2022 Sep 13;13:978337. <https://pubmed.ncbi.nlm.nih.gov/36176443/>

*Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.*