

Product data sheet



MedKoo Cat#: 329475 Name: Sulopenem CAS#: 120788-07-0 (free base) Chemical Formula: C ₁₂ H ₁₅ NO ₅ S ₃ Exact Mass: 349.0112 Molecular Weight: 349.43	
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:

Sulopenem, also known as CP-70429, is a potent beta-lactamase inhibitor. Sulopenem showed potent antibacterial activity against gram-positive and gram-negative bacteria except *Pseudomonas aeruginosa* and *Xanthomonas maltophilia*. CP-70,429 was stable to various types of beta-lactamases except for the enzyme from *X. maltophilia* and was 16- to 128-fold more active than the other compounds against beta-lactamase-producing strains of *Enterobacter cloacae* and *Citrobacter freundii*.

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
DMSO	83.33	238.46

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.86 mL	14.31 mL	28.62 mL
5 mM	0.57 mL	2.86 mL	5.72 mL
10 mM	0.29 mL	1.43 mL	2.86 mL
50 mM	0.06 mL	0.29 mL	0.57 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. Maher JM, Huband MD, Blankers CG, Puttagunta S, Aronin SI, Castanheira M. In vitro activity of sulopenem and comparator agents against Enterobacterales and anaerobic clinical isolates collected during the SENTRY Antimicrobial Surveillance Program. *J Antimicrob Chemother.* 2023 Jun 1;78(6):1406-1414. doi: 10.1093/jac/dkad099. Erratum in: *J Antimicrob Chemother.* 2023 May 02;; PMID: 37042351; PMCID: PMC10232259.
2. Walkty AJ, Karlowsky JA, Baxter MR, Lagace-Wiens PRS, Adam HJ, Zhanel GG. In vitro activity of sulopenem against 1880 bacterial pathogens isolated from Canadian patients with urinary tract infections (CANWARD, 2014-21). *J Antimicrob Chemother.* 2022 Nov 28;77(12):3414-3420. doi: 10.1093/jac/dkac333. PMID: 36177825.

In vivo study

1. Negatu DA, Shin SJ, Kim SY, Jhun BW, Dartois V, Dick T. Oral β -lactam pairs for the treatment of *Mycobacterium avium* complex pulmonary disease. *J Infect Dis.* 2023 Dec 27;jiad591. doi: 10.1093/infdis/jiad591. Epub ahead of print. PMID: 38150401.
2. Zhanel GG, Pozdirca M, Golden AR, Lawrence CK, Zelenitsky S, Berry L, Schweizer F, Bay D, Adam H, Zhanel MA, Lagacé-Wiens P, Walkty A, Irfan N, Naber K, Lynch JP 3rd, Karlowsky JA. Sulopenem: An Intravenous and Oral Penem for the

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Treatment of Urinary Tract Infections Due to Multidrug-Resistant Bacteria. *Drugs*. 2022 Apr;82(5):533-557. doi: 10.1007/s40265-022-01688-1. Epub 2022 Mar 16. PMID: 35294769.

7. Bioactivity

Biological target:

Sulforaphane is an inducer of Nrf2 and is also an inhibitor of histone deacetylase (HDAC) and NF- κ B.

In vitro activity

The in vitro activity of sulopenem supports its potential in the treatment of intra-abdominal and urinary tract infections. Sulopenem demonstrated potent in vitro antimicrobial activity against Enterobacterales isolates regardless of infection type, inhibiting 99.2% of isolates at ≤ 1 mg/L. Sulopenem maintained activity against ciprofloxacin-, nitrofurantoin- and trimethoprim/sulfamethoxazole-non-susceptible subsets (MIC_{50/90}, 0.03-0.06/0.12-0.5 mg/L).

Reference: *J Antimicrob Chemother*. 2023 Jun 1;78(6):1406-1414. <https://pubmed.ncbi.nlm.nih.gov/37042351/>

In vivo activity

Sulopenem, an intravenous and oral penem, shows promise for treating uncomplicated and complicated urinary tract infections. It exhibits activity against fluoroquinolone-resistant, extended spectrum β -lactamases-producing, multidrug-resistant Enterobacterales. Sulopenem remains effective against various pathogens, including Gram-negative and Gram-positive microorganisms. Clinical trials have shown mixed results in comparison to other antibiotics, with potential for use in patients with resistant pathogens.

Reference: *Drugs*. 2022 Apr;82(5):533-557. <https://pubmed.ncbi.nlm.nih.gov/35294769/>

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.