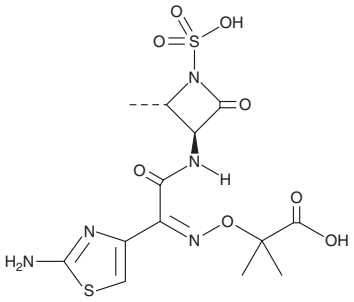
PRODUCT INFORMATION

Aztreonam

Item No. 19784

CAS Registry No.:	78110-38-0
Formal Name:	2-[[(Z)-[1-(2-amino-4-thiazolyl)-2-[[(2S,3S)-2-methyl-4-oxo-1-sulfo-3-azetidinyl]amino]-2-oxoethylidene]amino]oxy]-2-methyl-propanoic acid
Synonym:	SQ 26,776
MF:	$C_{13}H_{17}N_5O_8S_2$
FW:	435.4
Purity:	≥95%
UV/Vis.:	λ_{max}: 229, 260 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Aztreonam is supplied as a crystalline solid. A stock solution may be made by dissolving the aztreonam in the solvent of choice, which should be purged with an inert gas. Aztreonam is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of aztreonam in ethanol is approximately 20 mg/ml and approximately 30 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of aztreonam can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of aztreonam in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Aztreonam is a synthetic β-lactam antibiotic of the monobactam class.{31705} It is active against clinical isolates of *E. coli*, *S. marcescens*, *P. aeruginosa*, *Klebsiella* species, *Proteus* species, and *Enterobacter* species (MICs = <0.1, 1.2, 5.2, 3.1, <0.1, and 19.3 µg/ml, respectively) but is inactive against *S. pneumoniae*, *B. fragilis*, and *S. faecalis* (MICs = >100 µg/ml for all). It interferes with peptidoglycan synthesis in the bacterial cell wall of the Gram-negative bacteria *E. coli*, *P. vulgaris*, *E. cloacae*, *K. pneumoniae*, and *P. aeruginosa* by inhibiting penicillin-binding protein 3 (PBP3; IC_{100} = 0.1 µg/ml for all). It increases survival in mice with systemic Gram-negative bacterial infections (ED_{50}s = 0.1-24.7 mg/kg). Formulations containing aztreonam have been used in the treatment of *P. aeruginosa* infections in individuals with cystic fibrosis.

References

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2. Brogden, R. N., and Heel, R. C., *Drugs* **31(2)**, 96-130 (1986).
3. Bush, K., *Clin. Microbiol. Rev.* **1(1)**, 109-123 (1988).
4. Drawz, S.M. and Bonomo, R.A., *Clin. Microbiol. Rev.* **23(1)**, 160-201 (2010).
5. Coudron, P.E., Moland, E.S., and Sanders, C.C., *J. Clin. Microbiol.* **35(10)**, 2593-2597 (1997).

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