Aztreonam

Product Number  A 6848
Store at Room Temperature

Product Description
Molecular Formula: C₁₃H₁₇N₅O₈S₂
Molecular Weight: 435.4
CAS Number: 78110-38-0
Melting Point: 227 °C (with decomposition)
Synonyms: [2S-[2α,3β(Z)]]-2-[[1-(2-amino-4-thiazolyl)-2-{(2-methyl-4-oxo-1-sulfo-3-azetidinyl)amino}-2-oxoethylidene]amino]oxy]2-methylpropanoic acid, azthreonam

Aztreonam is the first completely synthetic monobactam antibiotic. It possesses a high level of resistance to β-lactamases and has a relatively narrow spectrum of antibacterial activity, particularly against Gram-negative aerobic organisms. Aztreonam specifically targets the penicillin binding protein 3 (PBP-3) of Gram-negative bacteria. It is also effective against such Enterobacteriaceae as E. coli, Klebsiella, Proteus, Providencia, Salmonella, Serratia, Shigella, and Yersinia species.¹,²

The susceptibility of various Plesiomonas shigelloides strains to a range of antibiotics, including aztreonam, has been investigated.³ A comparative pharmacodynamics study on the effects of aztreonam and tigemonam against Escherichia coli and Klebsiella pneumoniae both in vitro and in vivo has been published.⁴

Aztreonam and other α-lactam antibiotics have been used in a study of TNF-α and inducible nitric oxide synthase (iNOS) production from mouse peritoneal macrophages following co-culture with E. coli or Staphylococcus aureus bacteria.⁵ The inhibition of PBP-3 by aztreonam has been utilized to probe the structural localization of penicillin-binding protein 2 (PBP-2) in E. coli.⁶

Precautions and Disclaimer
For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions
This product is soluble in dimethylformamide:methanol (1:1, 50 mg/ml), yielding a clear to slightly hazy, colorless solution.

References
1. The Merck Index, 12th ed., Entry# 955.

GCY/RXR 11/03