Ampicillin sodium salt
Cell Culture Tested

Catalog Number A0166
Storage Temperature 2–8 °C

CAS RN 69-52-3
Synonym: \(^1\) D(-)-\(\alpha\)-aminobenzylpenicillin

Product Description
Molecular Formula: \(\text{C}_{16}\text{H}_{18}\text{N}_3\text{O}_4\text{SNa}\)
Molecular Weight: 371.39

This product is cell culture tested and is appropriate for use in cell culture applications.

Ampicillin is a semi-synthetic derivative of penicillin that interferes with peptidoglycan crosslinking and thus inhibits cell wall synthesis. It is a broad-spectrum antibiotic, with a spectrum of action broader than benzylpenicillin, especially against Gram-negative bacilli. Ampicillin is similar to benzylpenicillin in its action against Gram-positive bacteria. Its action is similar to that of the tetracyclines and chloramphenicol against Gram-negative bacteria. Ampicillin is inactivated by \(\beta\)-lactamases, and thus it is often administered with a \(\beta\)-lactamase inhibitor.\(^2\)

Minimal inhibitory concentrations for Gram-positive organisms have been reported to range from 0.02–1.5 \(\mu\)g/ml and for Gram-negative organisms from 0.03–3 \(\mu\)g/ml.\(^3\)

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
This product is soluble in water (50 mg/ml).

Storage/Stability
The stability of ampicillin solutions is dependent on temperature and pH. Ampicillin solutions should not be autoclaved. Stock solutions (50 mg/ml) should be sterilized by filtration through a 0.22 \(\mu\)m filter.

Ampicillin solutions can be added to agars or culture media which have been autoclaved and cooled to 45–50 °C. Culture plates with ampicillin can be stored at 2–8 °C for up to two weeks.\(^3\)

Stock solutions may be stored at 2–8 °C for up to 3 weeks. For long term storage (4–6 months), stock solutions should be stored at −20 °C. At 37 °C in culture, ampicillin is stable up to 3 days.

Ampicillin in solution is not very stable at pH >7. The optimal pH of the stock solution should be ≤7.\(^4\)-\(^6\) In addition, the identity of the buffer can affect the solution stability.\(^4\) For example, Tris is deleterious to ampicillin at pH 7, but not at pH 5. Conversely, citrate is suitable at pH 7, but not at pH 5. Acetate buffer seems optimal at pH 6.\(^4\),\(^5\)

References
1. The Merck Index, 12th Ed., Entry# 628.