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ProductInformation

Ampicillin sodium salt

Product Number **A2804**
Storage Temperature 2-8 °C

Product Description

Molecular Formula: $C_{16}H_{18}N_3O_4Na$
Molecular Weight: 371.4
CAS Number: 69-52-3
Synonym: D(-)-α-aminobenzylpenicillin[1]

This product is designated as molecular biology grade. This product has been by γ-irradiated.

Ampicillin is a semi-synthetic derivative of penicillin that interferes with peptidoglycan cross-linking 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 β-lactamases, and thus it is often administered with a β-lactamase inhibitor.[2]

Minimum inhibitory concentrations for Gram-positive organisms have been reported to range from 0.02 - 1.5 µg/ml and for Gram-negative organisms from 0.03 - 3 µg/ml.[2]

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water (50 mg/ml), yielding a clear, colorless to faint yellow solution. For molecular biology applications, this product is recommended for use at 20-50 µg/ml. Stock solutions may be prepared directly in the vial at any concentration in the recommended range.

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 µm filter.

Ampicillin solutions can be added to agar 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.[4,5,6] 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

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3. Molecular Cloning: A Laboratory Manual, 2nd ed., Sambrook, Fritsch and Maniatis, Cold Spring Harbor Laboratory (Cold Spring Harbor, NY: 1989), pp. 1.6, A.6.
4. Analytical Profiles of Drug Substances, K. Florey, ed., Academic Press (New York: 1973), Vol. 2, pp. 1-61.
5. Gallelli, J. F., Stability studies of drugs used in intravenous solutions. I. Amer. J. Hosp. Pharm., **24**, 425-433 (1967).
6. Lynn, B., The stability and administration of intravenous penicillins. Brit. J. Intravenous Therapy, **2**, 22 (1981).

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