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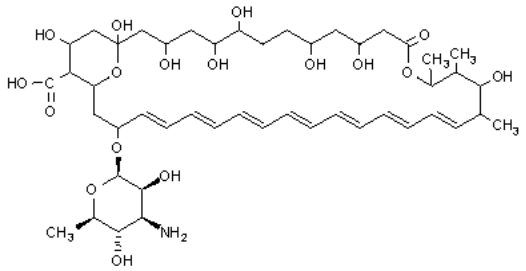
Product Information

Amphotericin B
from *Streptomyces* sp.

Catalog Number **A9528, A2411, and A4888**
Storage Temperature 2–8 °C

CAS RN 1397-89-3

Product Description



Molecular formula: $C_{47}H_{73}NO_{17}$
Molecular weight: 924.08

Melting Point:[1] >170 °C with decomposition
λ_{max}:[1] 345, 363, 382, 406 nm (methanol)
pK_a:[2] 5.5, 10.0

Amphotericin B is a polyene antifungal antibiotic from *Streptomyces* sp. It has a high affinity for sterols, primarily ergosterols, of fungal[3] and bacterial cell membranes.[4] After binding to sterols, it forms channels in the membranes, causing small molecules to leak out. Amphotericin B is effective against fungi and yeast. The name of the drug is derived from the amphoteric behavior of the drug, due to the carboxyl group on the main ring and a primary amino group on the mycosamine ring.[5]

Amphotericin B induces K^+ leakage, which is separate from its lethal action, as was demonstrated in human erythrocytes and is due to the inhibitory effect on the Na^+/K^+ pump.[6] At sub-lethal concentrations, this drug stimulates either the activity of some membrane enzymes or cellular metabolism,[3] in particular stimulation of some cells of the immune system.[7]

Minimum inhibitory concentrations range from 0.03–1 μg/ml for a variety of organisms including strains of *Candida*, *Rhizopus*, *Asperigillus*, and *Coccidioides*. It is inactive against bacteria, rickettsia, and viruses.

Normal usage for maintenance of cell cultures is 2.5 mg/L with penicillin and streptomycin in the medium.[8] For cultures already contaminated with yeast and fungus, use of this product at 2–4 times the normal level (5–10 mg/L), without penicillin and streptomycin for 2–3 subcultures is recommended. Once the contamination is under control, normal maintenance levels of amphotericin B should be used. SigmaClean® water bath treatment (Catalog Number S5525) is recommended for cleaning the incubator and for adding to the water reservoir to eliminate yeast and fungal contamination.

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

Preparation Instructions
Amphotericin B is insoluble in water at pH 6 to 7, but soluble in water at pH 2 or 11. It is soluble in DMSO (30–40 mg/ml) and in dimethylformamide (2–4 mg/ml). Aqueous solutions cannot be sterile filtered due to poor solubility.

Storage/Stability
Amphotericin B remains active for 3 days in culture at 37 °C. For long term, storage at –20 °C, protected from air and light, is recommended.[1] Under these conditions the products remain active for 5 years.

A9528 Amphotericin B solubilized cell culture tested, γ-irradiated
This formulation is a colloidal suspension of Amphotericin B, using deoxycholate as the solubilizing agent. The product is ~45% Amphotericin B, 35% sodium deoxycholate; the balance being sodium phosphate and sodium chloride.

Preparation instructions
If reconstituted at 25 mg/10 ml of sterile water, there is no need to filter sterilize. This will yield a slightly hazy yellow solution.

A2411 Amphotericin B, cell culture tested
A4888 Amphotericin B

Both products contain at least 80% amphotericin B and up to 5% amphotericin A by HPLC.

Preparation instructions
Soluble in DMSO (30–40 mg/ml), yielding a hazy solution. For cell culture use, stock solutions in DMSO are prepared at 2.5 mg/ml and filter-sterilized. Then 1 ml of this solution is added to 1 liter of cell culture medium.

References

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