Amphotericin B, EP
PRODUCT DATA SHEET

issue date 01/06/2020

Product Name:	Amphotericin B, EP
Product Number:	A064
CAS Number:	1397-89-3
Molecular Formula:	$C_{47}H_{73}NO_{17}$
Molecular Weight:	924.08
Form:	Powder
Appearance:	Yellow or Orange hygroscopic powder
Solubility:	Insoluble: H_2O, Ethanol Soluble: Dimethyl sulfoxide, propylene glycol, slightly soluble in methanol
Source:	*Streptomyces nodosus*
Absorbance:	UV max: 362, 381 and 405nm UV ratios: A_{362}/A_{381} = 0.57-0.61 A_{381}/A_{405} = 0.87-0.93
Storage Conditions:	2-8°C
Description:	Amphotericin B, EP is a polyene antifungal or antimycotic compound derived from *Streptomyces nodosus*. It is used to control contamination from fungi, viruses and protozoa. TOKU-E offers 3 forms of Amphotericin B: • Amphotericin B, EP (A064) • Amphotericin B, USP (A007) • Amphotericin B, solubilized (A008) The compound is nearly insoluble in water at pH 6-7 (but is soluble at pH 2 or 11). It is soluble in dimethyl sulfoxide and dimethylformamide. Amphotericin B, EP conforms to European Pharmacopoeia specifications.
Mechanism of Action:	Amphotericin B associates with membrane sterols (ergosterol in fungal cell membranes, and cholesterol in mammalian cell membranes). Amphotericin B forms a pore in these membranes resulting in leakage of essential ions and ultimately cell death.

Spectrum:

Amphotericin B is active against mammalian cells, fungi, viruses, and protozoa. Amphotericin B is not toxic to bacteria due to their lack of sterols.. The following represents MIC susceptibility data for amphotericin B against common fungal pathogens:

- *Candida albicans* - 0.001 - 321 µg/mL
- *Candida krusei* - 0.001 - 16 µg/mL
- *Coccidioides immitis* - 0.0625 - 2 µg/mL
- *Cryptococcus neoformans* - 0.2 - 39 µg/mL
- *Fusarium oxysporum* - 0.75 - 125 µg/mL

Microbiology Applications

Amphotericin B is used as an antimycotic selective agent in several routinely used selective media formulations to inhibit the growth of background fungal growth. It can also combat viruses and protozoa.

Plant Biology Applications

Amphotericin B can be used to inhibit phytopathogenic fungi *in vitro*

References:

Brajtburg, J, Powderly WG, Kobayashi GS, and Medoff G. (1990) Amphotericin B: Current understanding of mechanisms of action. Antimicrob. Agents and Chemother. 34 (2):183-88. PMID 2183713

Mangé A et al. (2000) Amphotericin B inhibits the generation of the scrapie isoform of the prion protein in infected cultures. J. Virol. 74(7):3135-3140 PMID 10708429

Perez-de-Luque A et al. (2012) Effect of Amphotericin B nanodisks on plant fungal diseases. Pest Manag. Sci. 68(1):67-74. PMID 21710554

Rice, LB, and Ghannoum MA (1999). Antifungal Agents: Mode of action, mechanisms of resistance, and correlation of these mechanisms with bacterial resistance. Clin. Microbiol. Rev. 12(4):501-517 PMID 10515900

Radomski N, Cambau E, Moulin L, Haenn S, Moilleron R, and Lucas FS (2010) Comparison of culture methods for isolation of nontuberculous *Mycobacteria* from surfacewaters. Appl. Environ. Microbiol 76(11):3514-3520 PMID 20363776

Schaffner CP et al (1986) Anti-viral activity of Amphotericin B methyl ester: inhibition of HTLV-III replication in cell culture. Biochem. Pharmacol. 35(22):4110-4113 PMID 3640625

Sokol-Anderson ML, Braitburg J, Medoff G (1986) Amphotericin B-induced oxidative damage and killing of *Candida albicans*. J. Infect. Dis. 154(1):76-83 PMID 3519792