Amphotericin B trihydrate

Cat. No.: HY-B0221A

CAS No.: 1202017-46-6

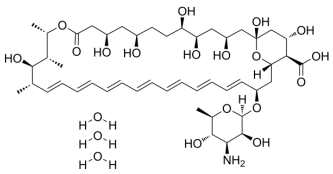
Molecular Formula: $C_{47}H_{79}NO_{20}$

Molecular Weight: 978.12

Target: Antibiotic; Fungal; Bacterial; Parasite

Pathway: Anti-infection

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Amphotericin B trihydrate, a polyene antibiotic, is first isolated from fermenter cultures of Streptomyces nodosus. Amphotericin B trihydrate also possesses antileishmanial activity[1][2].	
IC_{50} & Target	Leishmania	Plasmodium
In Vitro	Amphotericin B interacts with cholesterol, the major sterol of mammal membranes, thus limiting the usefulness of Amphotericin B due to its relatively high toxicity. Amphotericin B is dispersed as a pre-micellar or as a highly aggregated state in the subphase[4]. Amphotericin B only kills unicellular Leishmania promastigotes (LPs) when aqueous pores permeable to small cations and anions are formed. Amphotericin B (0.1 mM) induces a polarization potential, indicating K^+ leakage in KCl-loaded liposomes suspended in an iso-osmotic sucrose solution. Amphotericin B (0.05 mM) exhibits a nearly total collapse of the negative membrane potential, indicating Na^+ entry into the cells[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.	
In Vivo	Amphotericin B results in prolonging the incubation time and decreasing PrPSc accumulation in the hamster scrapie model. Amphotericin B markedly reduces PrPSc levels in mice with transmissible subacute spongiform encephalopathies (TSSE)[4]. Amphotericin B exerts a direct effect on Plasmodium falciparum and influences eryptosis of infected erythrocytes, parasitemia and hostsurvival in murine malaria. Amphotericin B tends to delay the increase of parasitemia and significantly delays host death plasmodium berghei-infected mice[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.	

CUSTOMER VALIDATION

- Cell. 2022 Aug 18;185(17):3124-3137.e15.
- Cancers (Basel). 2022, 14(14), 3550.
- Microbiol Spectr. 2023 May 4;e0530222.
- J Virol. 2020 Nov 23;94(24):e01350-20.
- Neuropharmacology. 2019 Apr 4;151:33-44.

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REFERENCES

[1]. A Lemke, et al. Amphotericin B Appl Microbiol Biotechnol. 2005 Aug;68(2):151-62.

[2]. Andreza Rochelle do Vale Morais, et al. In-vitro and in-vivo antileishmanial activity of inexpensive Amphotericin B formulations: Heated Amphotericin B and Amphotericin B-loaded microemulsion. Exp Parasitol. 2018 Sep;192:85-92.

[3]. Ramos H, et al. Amphotericin B kills unicellular leishmanias by forming aqueous pores permeable to small cations and anions. J Membr Biol. 1996 Jul;152(1):65-75.

[4]. Demaimay R, et al. Pharmacological studies of a new derivative of amphotericin B, MS-8209, in mouse and hamster scrapie. J Gen Virol. 1994 Sep;75 (Pt 9):2499-503.

[5]. Adams ML, et al. Amphotericin B encapsulated in micelles based on poly(ethylene oxide)-block-poly(L-amino acid) derivatives exerts reduced in vitro hemolysis but maintains potent in vivo antifungal activity. Biomacromolecules. 2003 May-Jun;4(3):750-7.

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