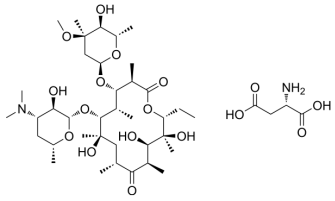
Erythromycin (aspartate)

Cat. No.:	HY-B0220C
CAS No.:	30010-41-4
Molecular Formula:	$C_{41}H_{74}N_2O_{17}$
Molecular Weight:	867.03
Target:	Antibiotic; Bacterial; DNA/RNA Synthesis
Pathway:	Anti-infection; Cell Cycle/DNA Damage
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Erythromycin aspartate is a macrolide antibiotic produced by actinomycete Streptomyces erythreus with a broad spectrum of antimicrobial activity. Erythromycin aspartate binds to bacterial 50S ribosomal subunits and inhibits RNA-dependent protein synthesis by blockage of transpeptidation and/or translocation reactions, without affecting synthesis of nucleic acid [1][2]. Erythromycin aspartate also exhibits antitumor and neuroprotective effect in different fields of research[3][4].
IC_{50} & Target	Macrolide
In Vitro	Erythromycin aspartate inhibits growth of P. falciparum with IC_{50} and IC_{90} values of 58.2 μM and 104.0 μM, respectively[1]. Erythromycin aspartate (10 μM, 100 μM; 24 h, 72 h) shows antioxidant and anti-inflammatory effects and suppresses the accumulation of 4-HNE ($p<0.01$) and 8-OHdG ($p<0.01$), reduces Iba-1 ($p<0.01$) and TNF-α ($p<0.01$) expression significantly[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[4]

Cell Line:	Embryos primary cortical neuron (from the cerebral cortices of 17-day-old Sprague-Dawley rat)
Concentration:	10, 100 μM
Incubation Time:	24, 72 hours
Result:	Improved the viability of cultured neuronal cells in vitro after 3 hours oxygen-glucose deprivation (OGD).

In Vivo

Erythromycin aspartate (gastric intubation; 0.1-50 mg/kg; 30-120 days) decreases tumor growth and prolong the survival time of mice from dose of 5 mg/kg in mice[3].

Erythromycin aspartate (gastric intubation; 5 mg/kg) protects mice alive even at 120 days after inoculation, but shortens mean survival time in tumor-bearing mice by 4-5 days with dose of 50 mg/kg[3].

Erythromycin aspartate (i.h.; single injection; 50 mg/kg) has a protective effect on the rat model with cerebral ischemia reperfusion-injury[4].

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Animal Model:	Female ddY mice (6-week-old) with EAC cells or CDF mice (6-week-old) with P388 cells[3]

Dosage:	0.1 mg/kg; 0.5 mg/kg; 10 mg/kg; 30 mg/kg; 50 mg/kg
Administration:	Gastric intubation; 30-120 days
Result:	Decreased tumor growth and prolonged the mean survival time of mice from the dose of 5 mg/kg, however, the 50 mg/kg dosage shortened the MST in tumorbearing mice.

Animal Model:	Male Sprague-Dawley rats (8-week-old, 250-300 g)[4]
Dosage:	50 mg/kg
Administration:	Subcutaneous single injection
Result:	Reduced infarct volume and edema volume, improved neurological deficit.

CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Mar 11.
- Theranostics. 2022 Jan 1;12(3):1187-1203.
- EBioMedicine. 2022 Apr;78:103943.
- Biofabrication. 2023 Aug 8.
- Chemosphere. 2019 Jun;225:378-387.

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REFERENCES

[1]. Gribble MJ, et al. Erythromycin. Med Clin North Am. 1982 Jan;66(1):79-89.

[2]. Nakornchai S, et al. Activity of azithromycin or erythromycin in combination with antimalarial drugs against multidrug-resistant Plasmodium falciparum in vitro. Acta Trop. 2006 Dec. 100(3):185-91.

[3]. Hamada K, et al. Antitumor effect of erythromycin in mice. Chemotherapy. 1995 Jan-Feb. 41(1):59-69.

[4]. Katayama Y, et al. Neuroprotective effects of erythromycin on cerebral ischemia reperfusion-injury and cell viability after oxygen-glucose deprivation in cultured neuronal cells. Brain Res. 2014 Nov 7. 1588:159-67.

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