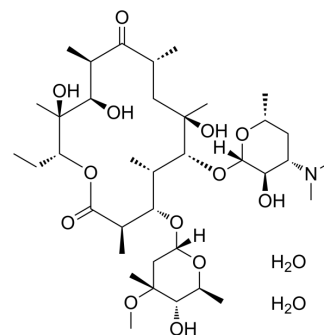


## Erythromycin A dihydrate

<b>Cat. No.:</b>	HY-B0220E
<b>CAS No.:</b>	59319-72-1
<b>Molecular Formula:</b>	C <sub>37</sub> H <sub>71</sub> NO <sub>15</sub>
<b>Molecular Weight:</b>	769.96
<b>Target:</b>	Bacterial; Antibiotic; DNA/RNA Synthesis
<b>Pathway:</b>	Anti-infection; Cell Cycle/DNA Damage
<b>Storage:</b>	Please store the product under the recommended conditions in the Certificate of Analysis.



### BIOLOGICAL ACTIVITY

<b>Description</b>	Erythromycin A dihydrate is a macrolide antibiotic produced by actinomycete?Streptomyces erythreus?with a broad spectrum of antimicrobial activity. Erythromycin A dihydrate 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 <sup>[1][2]</sup> . Erythromycin A dihydrate also exhibits antitumor and neuroprotective effect in different fields of research <sup>[3][4]</sup> .									
<b>IC<sub>50</sub> &amp; Target</b>	Macrolide									
<b>In Vitro</b>	<p>Erythromycin A dihydrate inhibits growth of <i>P. falciparum</i> with IC<sub>50</sub> and IC<sub>90</sub> values of 58.2 μM and 104.0 μM, respectively<sup>[1]</sup>. Erythromycin A dihydrate (10 μM, 100 μM; 24 h, 72 h) shows antioxidant and anti-inflammatory effects and suppresses the accumulation of 4-HNE (p&lt;0.01) and 8-OHdG (p&lt;0.01), reduces Iba-1 (p&lt;0.01) and TNF-α (p&lt;0.01) expression significantly<sup>[4]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Viability Assay<sup>[4]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>Embryos primary cortical neuron (from the cerebral cortices of 17-day-old Sprague-Dawley rat)</td> </tr> <tr> <td>Concentration:</td> <td>10, 100 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>24, 72 hours</td> </tr> <tr> <td>Result:</td> <td>Improved the viability of cultured neuronal cells in vitro after 3 hours oxygen-glucose deprivation (OGD).</td> </tr> </table>		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).
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Result:	Improved the viability of cultured neuronal cells in vitro after 3 hours oxygen-glucose deprivation (OGD).									
<b>In Vivo</b>	<p>Erythromycin A dihydrate (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<sup>[3]</sup>.</p> <p>Erythromycin A dihydrate (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<sup>[3]</sup>.</p> <p>Erythromycin A dihydrate (i.h.; single injection; 50 mg/kg) has a protective effect on the rat model with cerebral ischemia reperfusion-injury<sup>[4]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>									

Animal Model:	Female ddY mice at the age of 6 weeks with EAC cells or CDF mice at the age of 6 weeks with P388 cells <sup>[3]</sup>
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) <sup>[4]</sup>
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.
- Emerg Microbes Infect. 2024 Dec;13(1):2321981.
- Theranostics. 2022 Jan 1;12(3):1187-1203.
- EBioMedicine. 2022 Apr;78:103943.
- Biofabrication. 2023 Aug 8.

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## REFERENCES

- [1]. 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.
- [2]. Gribble MJ, et al. Erythromycin. Med Clin North Am. 1982 Jan;66(1):79-89.
- [3]. 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. Epub 2006 Nov 28.
- [4]. Hamada K, et al. Antitumor effect of erythromycin in mice. Chemotherapy. 1995 Jan-Feb. 41(1):59-69.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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