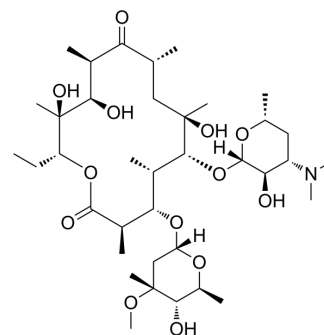


## Erythromycin

<b>Cat. No.:</b>	HY-B0220												
<b>CAS No.:</b>	114-07-8												
<b>Molecular Formula:</b>	C <sub>37</sub> H <sub>67</sub> NO <sub>13</sub>												
<b>Molecular Weight:</b>	733.93												
<b>Target:</b>	Bacterial; Antibiotic; DNA/RNA Synthesis												
<b>Pathway:</b>	Anti-infection; Cell Cycle/DNA Damage												
<b>Storage:</b>	<table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>6 months</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 month</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	6 months		-20°C	1 month
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	4°C	2 years											
In solvent	-80°C	6 months											
	-20°C	1 month											



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 100 mg/mL (136.25 mM)  
 H<sub>2</sub>O : < 0.1 mg/mL (insoluble)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent		Mass		
	Concentration		1 mg	5 mg	10 mg
	1 mM		1.3625 mL	6.8126 mL	13.6253 mL
	5 mM		0.2725 mL	1.3625 mL	2.7251 mL
	10 mM		0.1363 mL	0.6813 mL	1.3625 mL

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

- Add each solvent one by one: 0.5% CMC-Na/0.1% Tween-80 in Saline water  
Solubility: 5 mg/mL (6.81 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.08 mg/mL (2.83 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.08 mg/mL (2.83 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.08 mg/mL (2.83 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Erythromycin is a macrolide antibiotic produced by actinomycete *Streptomyces erythreus* with a broad spectrum of antimicrobial activity. Erythromycin 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 also exhibits antitumor and neuroprotective effect in different fields of research<sup>[3][4]</sup>.

#### IC<sub>50</sub> & Target

Macrolide

#### In Vitro

Erythromycin inhibits growth of *P. falciparum* with IC<sub>50</sub> and IC<sub>90</sub> values of 58.2 μM and 104.0 μM, respectively<sup>[1]</sup>. Erythromycin (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<sup>[4]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### Cell Viability Assay<sup>[4]</sup>

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 (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>. Erythromycin (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>. Erythromycin (i.h.; single injection; 50 mg/kg) has a protective effect on the rat model with cerebral ischemia reperfusion-injury<sup>[4]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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

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

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