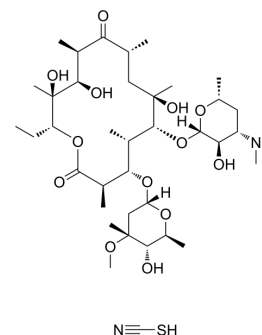


## Erythromycin thiocyanate

<b>Cat. No.:</b>	HY-B0220D
<b>CAS No.:</b>	7704-67-8
<b>Molecular Formula:</b>	C <sub>38</sub> H <sub>68</sub> N <sub>2</sub> O <sub>13</sub> S
<b>Molecular Weight:</b>	793.02
<b>Target:</b>	Bacterial; Antibiotic; DNA/RNA Synthesis
<b>Pathway:</b>	Anti-infection; Cell Cycle/DNA Damage
<b>Storage:</b>	-20°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 100 mg/mL (126.10 mM; Need ultrasonic)

Solvent	Mass	Concentration		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	1.2610 mL	6.3050 mL	12.6100 mL
	5 mM	0.2522 mL	1.2610 mL	2.5220 mL
	10 mM	0.1261 mL	0.6305 mL	1.2610 mL

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

### BIOLOGICAL ACTIVITY

#### Description

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

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

Macrolide

#### In Vitro

Erythromycin thiocyanate 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 thiocyanate (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)
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Concentration:	10, 100 $\mu$ M
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 thiocyanate (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 thiocyanate (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 thiocyanate (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 (6-week-old) with EAC cells or CDF mice (6-week-old) 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.
- 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]. Hamada K, et al. Antitumor effect of erythromycin in mice. *Chemotherapy*. 1995 Jan-Feb. 41(1):59-69.
- [2]. 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.
- [3]. Gribble MJ, et al. Erythromycin. *Med Clin North Am*. 1982 Jan;66(1):79-89.

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[4]. 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.

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

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