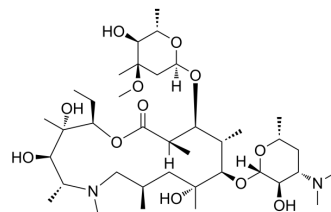


## Azithromycin

<b>Cat. No.:</b>	HY-17506		
<b>CAS No.:</b>	83905-01-5		
<b>Molecular Formula:</b>	C <sub>38</sub> H <sub>72</sub> N <sub>2</sub> O <sub>12</sub>		
<b>Molecular Weight:</b>	748.98		
<b>Target:</b>	Bacterial; Autophagy; Antibiotic; Parasite		
<b>Pathway:</b>	Anti-infection; Autophagy		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 100 mg/mL (133.51 mM)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	1.3351 mL	6.6757 mL	13.3515 mL
	5 mM	0.2670 mL	1.3351 mL	2.6703 mL
	10 mM	0.1335 mL	0.6676 mL	1.3351 mL

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

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
 Solubility: ≥ 2.5 mg/mL (3.34 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
 Solubility: 2.5 mg/mL (3.34 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
 Solubility: ≥ 2.5 mg/mL (3.34 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Azithromycin is a macrolide antibiotic useful for the treatment of a number of bacterial infections.

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

Macrolide

#### In Vitro

Azithromycin (2 μM) augments rhinovirus-induced IFNβ expression in primary bronchial epithelial cells from asthmatics, which is associated with over-expression of RIG-I like receptors and repression of viral replication. Knockdown of MDA5, but

not knockdown of RIG-I, diminishes azithromycin (2  $\mu$ M)-enhanced viral-induced IFN $\beta$  expression in asthmatic primary bronchial epithelial cells<sup>[1]</sup>. Azithromycin specifically reduces MMP-9 mRNA and protein levels without affecting NF- $\kappa$ B in endotoxin-challenged monocytic THP-1 cells<sup>[2]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### In Vivo

Azithromycin (50 mg/kg) has no effect on bronchoalveolar lavage inflammatory parameters and LDH levels in a mouse model of asthma exacerbation. Azithromycin induces neither general inflammatory parameters nor LDH release in a mouse model of asthma exacerbation, and augments expression of interferon-stimulated genes and the pattern recognition receptor MDA5 but not RIG-I in exacerbating mice<sup>[1]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## PROTOCOL

#### Cell Assay <sup>[2]</sup>

THP-1 cells ( $10^6$  cells in 1 mL RPMI medium, without antibiotics, growth factors or serum) are seeded in each well of 24-well plates and allowed to settle for 1 hour. Next, 50  $\mu$ L of the test compound is added followed by 50  $\mu$ L of LPS (final concentration of 10  $\mu$ g/mL). After 24h (37°C and 5% CO<sub>2</sub>) the supernatants and cell pellets are collected (1200 rpm, 5 min). THP-1 cell viability is tested using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT). MTT is dissolved at 2 mg/mL in PBS and aliquots are stored at -20°C. The MTT assay is performed according to the suppliers instructions. Absorbance of MTT converted into formazan is measured at a wavelength of 570 nm with background subtraction at 630 nm. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- Adv Sci (Weinh). 2020 Jul 21;7(17):2001374.
- Acta Pharm Sin B. 2021 Mar 11.
- Emerg Microbes Infect. 2024 Dec;13(1):2321981.
- Mol Ther. 2022 Feb 18;S1525-0016(22)00102-2.
- Theranostics. 2022 Jan 1;12(3):1187-1203.

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## REFERENCES

[1]. Menzel M, et al. Azithromycin augments rhinovirus-induced IFN $\beta$  via cytosolic MDA5 in experimental models of asthma exacerbation. Oncotarget. 2017 Mar 18.

[2]. Vandooren J, et al. Differential inhibition of activity, activation and gene expression of MMP-9 in THP-1 cells by azithromycin and minocycline versus bortezomib: A comparative study. PLoS One. 2017 Apr 3;12(4):e0174853.

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

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