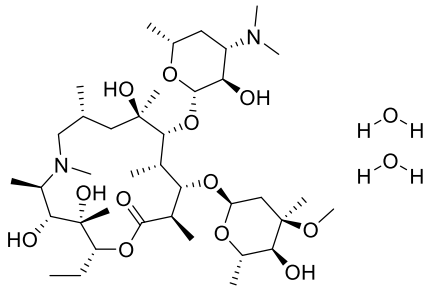
Product data sheet

MedKoo Cat#: 540039 Name: Azithromycin dihydrate CAS#: 117772-70-0 (dihydrate) Chemical Formula: $C_{38}H_{76}N_2O_{14}$ Exact Mass: 784.5297 Molecular Weight: 785.026	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Azithromycin dihydrate is a protein translation inhibitor used for it's antibacterial properties. It is also known to inhibit the epithelila-to-mesenchymal transition and suppresses LPS-stimulated production of pro-inflammatory cytokines in macrophages.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	100.0	127.38
Ethanol	100.0	127.38
Water	10.0	12.74

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	1.27 mL	6.37 mL	12.74 mL
5 mM	0.25 mL	1.27 mL	2.55 mL
10 mM	0.13 mL	0.64 mL	1.27 mL
50 mM	0.03 mL	0.13 mL	0.25 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Ruan H, Gao S, Li S, Luan J, Jiang Q, Li X, Yin H, Zhou H, Yang C. Deglycosylated Azithromycin Attenuates Bleomycin-Induced Pulmonary Fibrosis via the TGF-β1 Signaling Pathway. Molecules. 2021 May 10;26(9):2820. doi: 10.3390/molecules26092820. PMID: 34068694; PMCID: PMC8126120.
2. Du X, Zuo X, Meng F, Han C, Ouyang W, Han Y, Gu Y, Zhao X, Xu F, Qin FX. Direct inhibitory effect on viral entry of influenza A and SARS-CoV-2 viruses by azithromycin. Cell Prolif. 2021 Jan;54(1):e12953. doi: 10.1111/cpr.12953. Epub 2020 Nov 19. PMID: 33211371; PMCID: PMC7744835.

In vivo study

1. Wang J, Chen Q, Zhang Z, Wang S, Wang Y, Xiang M, Liang J, Xu J. Azithromycin alleviates systemic lupus erythematosus via the promotion of M2 polarisation in lupus mice. Cell Death Discov. 2021 Apr 16;7(1):82. doi: 10.1038/s41420-021-00466-4. PMID: 33863874; PMCID: PMC8050155.
2. Thomsen K, Christophersen L, Lerche CJ, Holmgaard DB, Calum H, Høiby N, Moser C. Azithromycin potentiates avian IgY effect against Pseudomonas aeruginosa in a murine pulmonary infection model. Int J Antimicrob Agents. 2021 Jan;57(1):106213. doi: 10.1016/j.ijantimicag.2020.106213. Epub 2020 Oct 23. PMID: 33256950.

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7. Bioactivity

Biological target:

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

In vitro activity

To determine whether Deg-AZM (deglycosylated azithromycin) affects TGF-β1-induced fibroblast proliferation and migration, NIH-3T3 cells were cultured with or without 5 ng/mL TGF-β1 and different doses of Deg-AZM for 24 h. The proliferation of NIH-3T3 cells was measured by MTT assays. This study found that Deg-AZM showed no obvious toxicity to normal cells, with an IC50 higher than 1 mM (Figure 4A,B). This study also used a wound healing assay to verify the effect of Deg-AZM on TGF-β1-induced fibroblast migration, and the results showed that Deg-AZM could inhibit fibroblast migration (Figure 4C).

Reference: Molecules. 2021 May; 26(9): 2820. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8126120/

In vivo activity

All of these changes were dramatically tempered in the AZM (azithromycin) group (Fig. 3A). Masson staining analysis revealed increased interstitial fibrosis and nearly complete glomerulosclerosis in the ALD-DNA group, which were significantly mitigated after AZM treatment (Fig. 3B). In addition, the capillary loops of the glomerulus were well defined and thin in the AZM group and normal control group, while the mesangial cells and matrix were hyperproliferative in the ALD-DNA group, as represented by periodic acid–Schiff (PAS) staining (Fig. 3C). Additionally, the ALD-DNA group had much more IgG deposition in the glomerulus than the AZM group (Fig. 3D).

Reference: Cell Death Discov. 2021; 7: 82. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8050155/