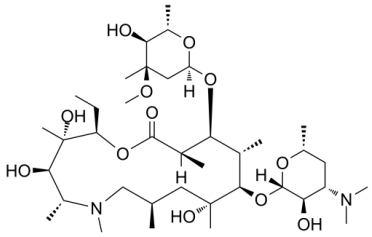
Data Sheet

Product Name:	Azithromycin
Cat. No.:	CS-2308
CAS No.:	83905-01-5
Molecular Formula:	C38H72N2O12
Molecular Weight:	748.98
Target:	Autophagy; Bacterial
Pathway:	Anti-infection; Autophagy
Solubility:	DMSO : ≥ 100 mg/mL (133.51 mM); H2O : < 0.1 mg/mL (insoluble)



BIOLOGICAL ACTIVITY:

Azithromycin is a macrolide antibiotic useful for the treatment of a number of bacterial infections. **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 μM)-enhanced viral-induced IFNβ expression in asthmatic primary bronchial epithelial cells[1]. Azithromycin specifically reduces MMP-9 mRNA and protein levels without affecting NF-κB in endotoxin-challenged monocytic THP-1 cells[2]. **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[1].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: [2]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 μL of the test compound is added followed by 50 μL of LPS (final concentration of 10 μg/mL). After 24h (37°C and 5% CO_2) 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.

References:

[1]. Menzel M, et al. Azithromycin augments rhinovirus-induced IFNβ 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.

CAIndexNames:

1-Oxa-6-azacyclopentadecan-15-one, 13-[(2,6-dideoxy-3-C-methyl-3-O-methyl-α-L-ribo-hexopyranosyl)oxy]-2-ethyl-3,4,10-trihydroxy-3,5,6,8,10,12,14-heptamethyl-11-[[3,4,6-trideoxy-3-(dimethylamino)-β-D-xylo-hexopyranosyl]oxy]-, (2R,3S,4R,5R,8R,10R,11R,12S,13S,14R)-

SMILES:

C[C@@H]([C@@H]([C@@](C(O[C@@H]([C@@](C)(O)[C@@H]1O)CC)=O)([H])C)O[C@@](O[C@@H](C)[C@@H]2O)([H])C[C@@]2(C)OC)[C@H]([C@](O)(C[C@H](CN([C@@H]1C)C)C)C)O[C@@](O[C@H](C)C[C@@H]3N(C)C)([H])[C@@H]3O

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