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Print Date: May 5th 2020

Certificate of Analysis

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Product Name: **Azithromycin** **Catalog No.: 3771** **Batch No.: 1**

CAS Number: 83905-01-5

IUPAC Name: 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]-1-oxa-6-azacyclopentadecan-15-one

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{38}H_{72}N_2O_{12}.2H_2O$

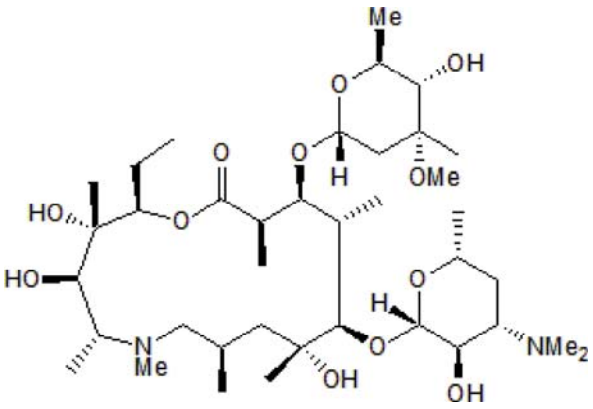
Batch Molecular Weight: 785.01

Physical Appearance: White solid

Solubility: DMSO to 100 mM
ethanol to 100 mM

Storage: Store at -20°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.2% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Optical Rotation: $[\alpha]_D$ = -34.6 (Concentration = 1, Solvent = Chloroform)

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	58.14	9.76	3.57
Found	58.51	9.83	3.72

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Product Information

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Description:

Macrolide antibiotic. Inhibits 50S ribosomal subunit formation and elongation at transpeptidation step in gram-positive and gram-negative organisms. Orally active with improved pharmacokinetics over erythromycin in mouse models. Inhibits autophagy. Predicted to disrupt binding of SARS-CoV-2 spike protein to ACE2.

Physical and Chemical Properties:

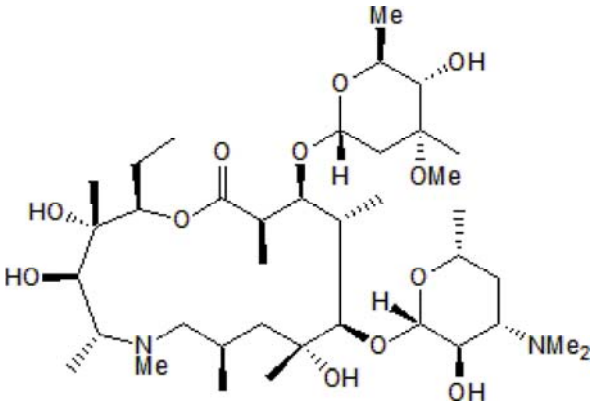
Batch Molecular Formula: $C_{38}H_{72}N_2O_{12}.2H_2O$

Batch Molecular Weight: 785.01

Physical Appearance: White solid

Minimum Purity: ≥99%

Batch Molecular Structure:



Storage: Store at -20°C

Solubility & Usage Info:

DMSO to 100 mM
ethanol to 100 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

Licensing Information:

Sold for research purposes under agreement from Pfizer Inc.

References:

Sandeep and McGregor *et al* (2020) Energetics based modeling of hydroxychloroquine and azithromycin binding to the SARS-CoV-2 spike (S) protein - ACE2 complex . ChemRxiv - Paper not yet peer reviewed..

Galluzzi *et al* (2017) Pharmacological modulation of autophagy: therapeutic potential and persisting obstacles. Nat.Rev.Drug.Discov.. PMID: 28529316 .

Champney and Burdine (1995) Macrolide antibiotics inhibit 50S ribosomal subunit assembly in *Bacillus subtilis* and *Staphylococcus aureas*. Antimicrob.Agents Chemother. ***39*** 2141. PMID: 8540733.

Girard *et al* (1987) Pharmacokinetic and in vivo studies with azithro. (CP-62,993), a new macrolide with extended half-life and excellent tissue distribution. Antimicrob.Agents Chemother. ***31*** 1948. PMID: 2830841.

Retsema *et al* (1987) Spectrum and mode of action of azithro. (CP-62,993), a new 15-membered-ring macrolide with improved potency against gram-negative organisms. Antimicrob.Agents Chemother. ***31*** 1939. PMID: 2449865.