Oligomycin A

Cat. No.: HY-16589

CAS No.: 579-13-5

Molecular Formula: $C_{45}H_{74}O_{11}$

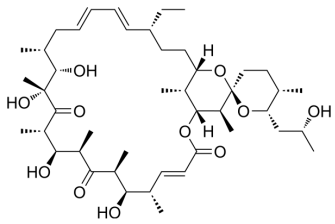
Molecular Weight: 791.06

Target: ATP Synthase; Fungal; Antibiotic

Pathway: Membrane Transporter/Ion Channel; Anti-infection

Storage:

Powder	-20°C	3 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (126.41 mM; Need ultrasonic)

Ethanol : 100 mg/mL (126.41 mM; ultrasonic and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.2641 mL	6.3206 mL	12.6413 mL
5 mM	0.2528 mL	1.2641 mL	2.5283 mL
10 mM	0.1264 mL	0.6321 mL	1.2641 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (3.16 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (3.16 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.16 mM); Clear solution
4. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (3.16 mM); Clear solution
5. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.16 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Oligomycin A (MCH 32), created by Streptomyces, acts as a mitochondrial F_0F_1-ATPase inhibitor, with a K_i of 1 μM; Oligomycin A shows anti-fungal activity.

IC_{50} & Target	Ki: 1 μM (F_0F_1-ATPase)[1]
In Vitro	Oligomycin A is a mitochondrial F_0F_1-ATPase inhibitor with a K_i of 1 μM. Oligomycin A shows cytotoxic to the NCI-60 cell lines, with GI_{50} of 10 nM. Oligomycin A also inhibits the activity of Triton X-100-solubilized ATPase with a K_i of 0.1 μM. Furthermore, Oligomycin A has anti-fungal activity[1]. Oligomycin A (2.4 μM) inhibits the ability of spermatozoa to achieve feasible in vitro capacitation (IVC), and also suppresses progesterone-induced in vitro acrosome exocytosis (IVAE) as well as the concomitant peaks of O_2 consumption and ATP levels[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	Drug (Oligomycin A, etc.) dilutions are added to monolayer or suspension cells in 96 well plates in triplicate for varying times. MTT is then added to the wells at a final concentration of 0.5 mg/mL. Supernatant is removed after pelleting the reduced MTT crystals. The crystals are fully dissolved in 40 mM HCl in isopropanol. Plates are scanned on a microplate reader at 595 nm[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Res. 2021 Sep;31(9):980-997.
- Cell Metab. 2023 Jan 3;35(1):200-211.e9.
- Cell Stem Cell. 2023 Apr 6;30(4):450-459.e9.
- Nano Today. 1 June 2022.
- Nat Commun. 2022 Apr 6;13(1):1853.

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REFERENCES

[1]. Salomon AR, et al. Apoptolidin, a selective cytotoxic agent, is an inhibitor of F0F1-ATPase. Chem Biol. 2001 Jan;8(1):71-80.

[2]. Ramió-Lluch L, et al. Oligomycin A-induced inhibition of mitochondrial ATP-synthase activity suppresses boar sperm motility and in vitro capacitation achievement without modifying overall sperm energy levels. Reprod Fertil Dev. 2014;26(6):883-97.

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