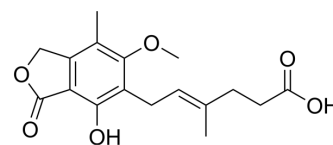


Mycophenolic acid

Cat. No.:	HY-B0421
CAS No.:	24280-93-1
Molecular Formula:	C ₁₇ H ₂₀ O ₆
Molecular Weight:	320.34
Target:	Apoptosis; Endogenous Metabolite; Bacterial; Fungal; Antibiotic; Flavivirus; Dengue virus
Pathway:	Apoptosis; Metabolic Enzyme/Protease; Anti-infection
Storage:	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 (312.17 mM)
 H₂O : < 0.1 mg/mL (ultrasonic) (insoluble)
 * "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM		3.1217 mL	15.6084 mL	31.2168 mL
	5 mM		0.6243 mL	3.1217 mL	6.2434 mL
	10 mM		0.3122 mL	1.5608 mL	3.1217 mL

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

In Vivo

- Add each solvent one by one: corn oil
Solubility: 33.33 mg/mL (104.05 mM); Suspended solution; Need ultrasonic and warming and heat to 60°C
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (7.80 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (7.80 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (7.80 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Mycophenolic acid is a potent uncompetitive inosine monophosphate dehydrogenase (IMPDH) inhibitor with an EC₅₀ of 0.24 μM. Mycophenolic acid demonstrates antiviral effects against a wide range of RNA viruses including influenza. Mycophenolic

	acid is an immunosuppressive agent. Antiangiogenic and antitumor effects ^{[1][2]} .	
IC ₅₀ & Target	Microbial Metabolite	Human Endogenous Metabolite
In Vitro	<p>Mycophenolic acid demonstrates antiviral effects against a wide range of RNA viruses including influenza, dengue virus, Zika virus, rotavirus, CCHFV, and hantavirus^[1].</p> <p>IMPDH is the rate-limiting enzyme in the de novo synthesis of guanosine nucleotides^[2].</p> <p>Mycophenolic acid (0.01-1 μM; 72 hours) exhibits preferential antiproliferative activity against the endothelial cells and fibroblasts. Endothelial cells are most sensitive cells to Mycophenolic acid treatment with an IC₅₀ <500 nM for antimitotic effects^[2].</p> <p>Fibroblasts are also prone to Mycophenolic acid-induced cell cycle inhibition but exhibit a higher IC₅₀ (<1 μM) compared with endothelial cells. The two human tumor cell lines A549 non-small cell lung cancer cells and PC3 prostate cancer cells show intermediate sensitivity with an IC₅₀ >1 μM. U87 glioblastoma cells are resistant against MPA treatment up to 1 μM^[2].</p> <p>Mycophenolic acid (0.05-2 μM; 18 hours) exhibits a dose-dependent down-regulation of HDAC2 and MYC, whereas up-regulates NDRG1^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Proliferation Assay^[2]</p>	
	Cell Line:	Primary isolated human dermal microvascular endothelial cells (HDMVEC) , fibroblasts, U87 glioblastoma cells, PC3 prostate cancer cells, A549 non-small cell lung cancer cells
	Concentration:	0.01, 0.1, 1 μM
	Incubation Time:	72 hours
	Result:	Exhibited preferential antiproliferative activity against HDMVEC and fibroblasts. Whereas U87 glioblastoma cells were resistant to treatment, A549 non-small cell lung cancer and PC3 prostate cancer cells showed intermediate sensitivity.
	Western Blot Analysis ^[2]	
	Cell Line:	HDMVEC
	Concentration:	0, 0.05, 0.1, 0.5, 1, and 2 μM
	Incubation Time:	18 hours
	Result:	Showed a dose-dependent regulation of HDAC2, MYC, and NDRG1.
In Vivo	<p>Mycophenolic acid exerts its antitumor effects via modulation of the tumor microenvironment, U87 tumor growth is markedly inhibited in vivo in BALB/c nude mice^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	
	Animal Model:	Athymic 8-week-old, 20 g BALB/c nu/nu mice bearing Mycophenolic acid-resistant human U87 tumor model ^[2]
	Dosage:	120 mg/kg MMF (the morpholinoethyl ester prodrug of Mycophenolic acid)
	Administration:	Oral gavage; b.i.d.
	Result:	MMF (the morpholinoethyl ester prodrug of Mycophenolic acid) significantly inhibited tumor growth (≈70% after day 14 after tumor implantation) in MMF-treated versus control mice. Microvessel density (CD31 staining) and pericyte coverage determined by α-smooth muscle actin staining were markedly reduced in MMF-treated versus control tumors (44%

and 78%, respectively).

CUSTOMER VALIDATION

- Nat Immunol. 2024 Mar 18.
- J Transl Med. 2024 Feb 3;22(1):133.
- J Agric Food Chem. 2023 Dec 28.
- Viruses. 2021 Jun 28;13(7):1255.
- Bone. 2022 Dec 21;168:116648.

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REFERENCES

- [1]. Stephen R Welch, et al. Screening and Identification of Lujo Virus Inhibitors Using a Recombinant Reporter Virus Platform. Viruses. 2021 Jun 28;13(7):1255.
- [2]. Sophie Domhan, et al. Molecular mechanisms of the antiangiogenic and antitumor effects of mycophenolic acid. Mol Cancer Ther. 2008 Jun;7(6):1656-68.

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

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