Mycophenolic acid sodium

Cat. No.: HY-B0421A

CAS No.: 37415-62-6

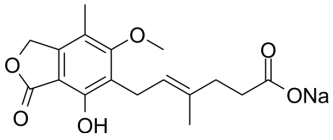
Molecular Formula: $C_{17}H_{19}NaO_6$

Molecular Weight: 342.32

Target: Antibiotic; Apoptosis; Bacterial; Fungal; Endogenous Metabolite; Flavivirus; Dengue virus

Pathway: Anti-infection; Apoptosis; Metabolic Enzyme/Protease

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Mycophenolic acid sodium is a potent uncompetitive inosine monophosphate dehydrogenase (IMPDH) inhibitor with an EC_{50} of 0.24 μM. Mycophenolic acid sodium demonstrates antiviral effects against a wide range of RNA viruses including influenza. Mycophenolic acid sodium is an immunosuppressive agent. Antiangiogenic and antitumor effects[1][2].

IC_{50} & Target

Human Endogenous Metabolite

In Vitro

Mycophenolic acid sodium demonstrates antiviral effects against a wide range of RNA viruses including influenza, dengue virus, Zika virus, rotavirus, CCHFV, and hantavirus[1].

IMPDH is the rate-limiting enzyme in the de novo synthesis of guanosine nucleotides[2].

Mycophenolic acid (0.01-1 μM; 72 hours) sodium exhibits preferential antiproliferative activity against the endothelial cells and fibroblasts. Endothelial cells are most sensitive cells to Mycophenolic acid treatment with an IC_{50} <500 nM for antimitotic effects[2].

Fibroblasts are also prone to Mycophenolic acid-induced cell cycle inhibition but exhibit a higher IC_{50} (<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 IC_{50} >1 μM. U87 glioblastoma cells are resistant against Mycophenolic acid sodium treatment up to 1 μM[2].

Mycophenolic acid (0.05-2 μM; 18 hours) sodium exhibits a dose-dependent down-regulation of HDAC2 and MYC, whereas up-regulates NDRG1[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[2]

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

Mycophenolic acid (120 mg/kg; oral gavage; b.i.d.) sodium exerts its antitumor effects via modulation of the tumor microenvironment, U87 tumor growth is markedly inhibited in vivo in BALB/c nude mice[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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

- J Agric Food Chem. 2023 Dec 28.
- Viruses. 2021 Jun 28;13(7):1255.
- Bone. 2022 Dec 21;168:116648.
- PLoS Negl Trop Dis. 2019 Aug 20;13(8):e0007681.
- Curr Res Virol Sci. 2022;3:100019.

See more customer validations on www.MedChemExpress.com

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.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA