Oseltamivir phosphate

Cat. No.: HY-17016

CAS No.: 204255-11-8

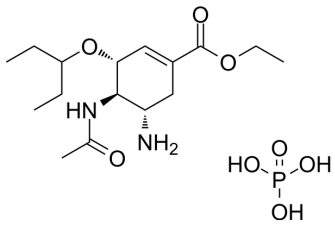
Molecular Formula: $C_{16}H_{31}N_2O_8P$

Molecular Weight: 410.4

Target: Influenza Virus

Pathway: Anti-infection

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (243.66 mM; Need ultrasonic)
DMSO : 100 mg/mL (243.66 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.4366 mL	12.1832 mL	24.3665 mL
5 mM	0.4873 mL	2.4366 mL	4.8733 mL
10 mM	0.2437 mL	1.2183 mL	2.4366 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 (6.09 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.09 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Oseltamivir phosphate (GS 4104) is a neuraminidase inhibitor recommended for the treatment and prophylaxis of influenza A and B.

IC_{50} & Target

Influenza A and B[1]

In Vitro

Oseltamivir phosphate (OP) is a prodrug that is readily absorbed from the gastrointestinal tract after oral administration and is extensively converted predominantly by hepatic esterases to Oseltamivir carboxylate (OC)[1]. Oseltamivir phosphate is a widely used anti-influenza sialidase inhibitor. The metabolic activity of CMA07 and CMT-U27 cell lines is significantly decreased with 305 μM Oseltamivir phosphate treatment (p=0.005 and p<0.0001 respectively) using One Way ANOVA testes. In contrast, no statistically significant alterations are observed with 0.305 μM (p=0.9781), 3.05 μM (p=0.7436) and 30.5 μM

	(p=0.9623) of Oseltamivir phosphate treatments when compare with control cells. Finally, to assess the effect of Oseltamivir phosphate on CMA07 and CMT-U27 programmed cell death, and given that 305 μM Oseltamivir phosphate treatment impaired cell metabolic activity, a programmed cell death measurement is performed with the TUNEL assay. Twenty-four hour Oseltamivir phosphate treatment, specifically at 305 μM, significantly increases CMA07 (p=0.001) and CMT-U27 (p=0.0002) DNA fragmentation, suggesting promotion of programmed cell death, when compare with lower Oseltamivir concentrations, or with PBS[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Oseltamivir phosphate-treated mice present significantly more inflammatory infiltrate in primary tumors (p=0.01). Ki-67 antigen and caspase-3 protein are used to assess CMT-U27 xenograft tumor cell proliferation and apoptosis respectively. Virtually no differences are found in Ki-67 and caspase 3 (p=0.2) expression between Oseltamivir-treated and non-treated mice[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	CMA07 and CMT-U27 cells are cultured in 24-well plates in triplicate for each condition: 0.305 μM, 3.05 μM, 30.5 μM and 305 μM Oseltamivir phosphate and PBS is used as control. Cells are counted every day for 7 days in a Neubauer's chamber in a 1:2 dilution of cells in 0.4% trypan blue and cell count is done using the volume conversion factor for 1 mm^3, which is 1×10^4. This assay is repeated 3 times and growth curves are traced[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Mice[2] Female NIH(S)II-nu/nu nude mice, aged 4-6 weeks, are orthotopically inoculated with 1×10^6 viable CMT-U27 canine breast cancer cells in the mammary fat pad using a 25 gauge needle. A total of 8 mice are inoculated. When nodules reached a volume of approximately 500 mm^3, mice (n=8) are randomized and divided into control group (n=4) and treatment group (n=4).The animals receive intraperitoneally (IP) dailly either 100 μL of PBS (control group) or 100mg/Kg of Oseltamivir phosphate, diluted in PBS (treatment group) until time of death. Tumor size is measured using calipers, and tumor volume (mm^3) is estimated by width×length×height. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Signal Transduct Target Ther. 2021 Apr 24;6(1):165.
- J Med Virol. 2023 Jul;95(7):e28968.
- Chemosphere. 2015 Jul;131:41-7.
- Cell Prolif. 2021 Jan;54(1):e12953.
- Phytomedicine. 2024 Mar 24, 155534.

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REFERENCES

[1]. Huang H, et al. Transplacental transfer of Oseltamivir phosphate and its metabolite Oseltamivir carboxylate using the ex vivo human placenta perfusion model in Chinese Hans population. J Matern Fetal Neonatal Med. 2016 Aug 8:1-5.

[2]. de Oliveira JT, et al. Anti-influenza neuraminidase inhibitor Oseltamivir phosphate induces canine mammary cancer cell aggressiveness. PLoS One. 2015 Apr 7;10(4):e0121590.

[3]. Li P, et al. A Simple and Robust Approach for Evaluation of Antivirals Using a Recombinant Influenza Virus Expressing Gaussia Luciferase. Viruses. 2018 Jun 13;10(6). pii: E325.

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