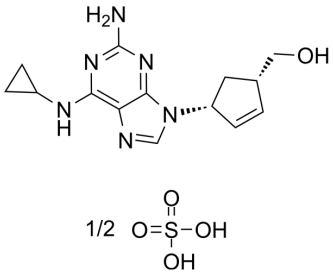
Abacavir sulfate

Cat. No.:	HY-17423A
CAS No.:	188062-50-2
Molecular Formula:	$C_{14}H_{18}N_6O.{}_1/_2H_2O_4S$
Molecular Weight:	335.38
Target:	Reverse Transcriptase; Apoptosis; HIV; Telomerase
Pathway:	Anti-infection; Apoptosis; Cell Cycle/DNA Damage
Storage:	4°C, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (149.08 mM; Need ultrasonic)
H_2O : 33.33 mg/mL (99.38 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.9817 mL	14.9085 mL	29.8169 mL
5 mM	0.5963 mL	2.9817 mL	5.9634 mL
10 mM	0.2982 mL	1.4908 mL	2.9817 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 10 mg/mL (29.82 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.45 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.45 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.45 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Abacavir sulfate (Abacavir Hemisulfate) is a competitive, orally active nucleoside reverse transcriptase inhibitor. Abacavir sulfate can inhibits the replication of HIV. Abacavir sulfate shows anticancer activity in prostate cancer cell lines. Abacavir sulfate can trespass the blood-brain-barrier and suppresses telomerase activity[1][2][3].

In Vitro

Abacavir (15 and 150 μM, 0-120 h) sulfate inhibits cell growth, affects cell cycle progression, induces senescence and modulates LINE-1 mRNA expression in prostate cancer cell lines[1].

Abacavir (15 and 150 μM, 18 h) sulfate significantly reduces cell migration and inhibits cell invasion[1].
Abacavir sulfate induces fat apoptosis[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[1]

Cell Line:	PC3, LNCaP and WI-38
Concentration:	15 and 150 μM
Incubation Time:	0, 24, 48, 72 and 96 h
Result:	Showed a dose-dependent growth inhibition on PC3 and LNCaP.

Cell Cycle Analysis[1]

Cell Line:	PC3 and LNCaP
Concentration:	150 μM
Incubation Time:	0, 18, 24, 48, 72, 96 and 120 h
Result:	Caused a very high accumulation of cells in S phase in PC3 and LNCaP cells, and G2/M phase increment was observed in PC3 cells.

Cell Migration Assay [1]

Cell Line:	PC3 and LNCaP
Concentration:	15 and 150 μM
Incubation Time:	18 h
Result:	Significantly reduced cell migration.

Cell Invasion Assay[1]

Cell Line:	PC3 and LNCaP
Concentration:	15 and 150 μM
Incubation Time:	18 h
Result:	Significantly inhibited cell invision.

In Vivo

Abacavir (0-7.5 μg/mL, 100 μL, intrascrotal administration; 100 and 200 mg/kg, p.o.; 4 h) sulfate dose-dependently promoted thrombus formation[2].
Abacavir (50 mg/kg/d; i.p.; 14 days) sulfate with 0.1 mg/kg/d Decitabine (HY-A0004) enhances survival of high-risk medulloblastoma-bearing mice[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male mice (9-weeks old, 22-30 g) - wild-type (WT) C57BL/6 or homozygous knockout (P2rx7 KO, B6.129P2-P2rx7^{tm1Gab}/J)[2]
Dosage:	2.5, 5 and 7.5 μg/mL, 100 μL or 100 and 200 mg/kg
Administration:	Intrascrotal or oral administration for 4 h

Result:	Dose-dependently promoted thrombus formation.

Animal Model:	NSG™ mice, patient-derived xenograft (PDX) cells of non-WNT/non-SHH, Group 3 and of SHH/ TP53-mutated medulloblastoma[3]
Dosage:	50 mg/kg/d with 0.1 mg/kg/d Decitabine
Administration:	Intraperitoneal injection, daily for 14 days
Result:	Inhibited tumor growth and enhanced mouse survival.

CUSTOMER VALIDATION

- Int J Antimicrob Agents. 2019 Dec;54(6):814-819.
- J Mol Liq. 2018 Feb;251:345-357.

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REFERENCES

[1]. Carlini F, et al. The reverse transcription inhibitor abacavir shows anticancer activity in prostate cancer cell lines. PLoS One. 2010 Dec 3;5(12):e14221.

[2]. Collado-Diaz V, et al. Abacavir Induces Arterial Thrombosis in a Murine Model. J Infect Dis. 2018 Jun 20;218(2):228-233.

[3]. Gringmuth M, et al. Enhanced Survival of High-Risk Medulloblastoma-Bearing Mice after Multimodal Treatment with Radiotherapy, Decitabine, and Abacavir. Int J Mol Sci. 2022 Mar 30;23(7):3815.

[4]. McComsey GA, et al. Improvements in lipoatrophy, mitochondrial DNA levels and fat apoptosis after replacing stavudine with abacavir or zidovudine. AIDS. 2005 Jan 3;19(1):15-23.

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

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