Abacavir hydrochloride

Cat. No.: HY-17423E

CAS No.: 136777-48-5

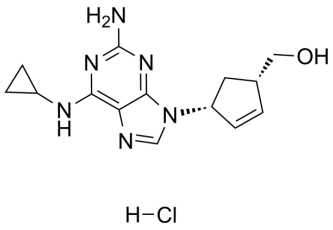
Molecular Formula: $C_{14}H_{19}ClN_6O$

Molecular Weight: 322.79

Target: HIV; Apoptosis; Reverse Transcriptase; Telomerase

Pathway: Anti-infection; Apoptosis; Cell Cycle/DNA Damage

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



BIOLOGICAL ACTIVITY

Description

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

In Vitro

Abacavir hydrochloride (15 and 150 μM, 0-120 h) inhibits cell growth, affects cell cycle progression, induces senescence and modulates LINE-1 mRNA expression in prostate cancer cell lines[1].
Abacavir hydrochloride (15 and 150 μM, 18 h) significantly reduces cell migration and inhibits cell invasion[1].
Abacavir hydrochloride 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 μM and 150 μM
Incubation Time:	0, 24, 48, 72 and 96 hours
Result:	Showed a dose-dependent growth inhibition on PC3 and LNCaP.

Cell Cycle Analysis[1]

Cell Line:	PC3, LNCaP and WI-38
Concentration:	150 μM
Incubation Time:	0, 18, 24, 48, 72, 96 and 120 hours
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, LNCaP and WI-38
Concentration:	15 and 150 μM

Incubation Time:	18 hours
Result:	Significantly reduced cell migration.

Cell Invasion Assay[1]

Cell Line:	PC3, LNCaP and WI-38
Concentration:	15 and 150 μM
Incubation Time:	18 hours
Result:	Significantly inhibited cell invision.

In Vivo

Abacavir hydrochloride (100 and 200 mg/kg, p.o.; 4 h) dose-dependently promotes thrombus formation[2].
Abacavir hydrochloride (50 mg/kg/d; i.p.; 14 d) 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:	Route 1: 2.5, 5, and 7.5 μg/mL, 100 μL Route 2: 100 and 200 mg/kg
Administration:	Intrascrotal or oral administration for 4 h
Result:	Dose-dependently promoted thrombus formation.

Animal Model:	NSG^{TM} 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

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

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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.

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