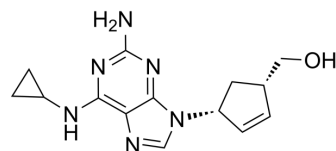


## Abacavir

<b>Cat. No.:</b>	HY-17423		
<b>CAS No.:</b>	136470-78-5		
<b>Molecular Formula:</b>	C <sub>14</sub> H <sub>18</sub> N <sub>6</sub> O		
<b>Molecular Weight:</b>	286.33		
<b>Target:</b>	HIV; Reverse Transcriptase; Apoptosis; Telomerase		
<b>Pathway:</b>	Anti-infection; Apoptosis; Cell Cycle/DNA Damage		
<b>Storage:</b>	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 (349.25 mM; Need ultrasonic)  
 H<sub>2</sub>O : 2 mg/mL (6.98 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent		Mass		
	Concentration		1 mg	5 mg	10 mg
	1 mM		3.4925 mL	17.4624 mL	34.9247 mL
	5 mM		0.6985 mL	3.4925 mL	6.9849 mL
	10 mM		0.3492 mL	1.7462 mL	3.4925 mL

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

#### In Vivo

- Add each solvent one by one: PBS  
Solubility: 3.33 mg/mL (11.63 mM); Clear solution; Need ultrasonic and warming
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.5 mg/mL (8.73 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (8.73 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (8.73 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Abacavir is an orally active and competitive nucleoside reverse transcriptase inhibitor. Abacavir can inhibit the replication of HIV. Abacavir shows anticancer activity in prostate cancer cell lines. Abacavir can cross the blood-brain barrier and suppresses telomerase activity<sup>[1][2][3]</sup>.

<b>In Vitro</b>	<p>Abacavir (15 and 150 <math>\mu</math>M, 0-120 h) inhibits cell growth, affects cell cycle progression, induces senescence and modulates LINE-1 mRNA expression in prostate cancer cell lines<sup>[1]</sup>.</p> <p>Abacavir (15 and 150 <math>\mu</math>M, 18 h) significantly reduces cell migration and inhibits cell invasion<sup>[1]</sup>.</p> <p>Abacavir induces fat apoptosis<sup>[4]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Proliferation Assay<sup>[1]</sup></p>	
	Cell Line:	PC3, LNCaP and WI-38
	Concentration:	15 and 150 $\mu$ M
	Incubation Time:	0, 24, 48, 72 and 96 h
	Result:	Showed a dose-dependent growth inhibition on PC3 and LNCaP.
	Cell Cycle Analysis <sup>[1]</sup>	
	Cell Line:	PC3 and LNCaP
	Concentration:	150 $\mu$ M
	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 <sup>[1]</sup>	
	Cell Line:	PC3 and LNCaP
Concentration:	15 and 150 $\mu$ M	
Incubation Time:	18 h	
Result:	Significantly reduced cell migration.	
Cell Invasion Assay <sup>[1]</sup>		
Cell Line:	PC3 and LNCaP	
Concentration:	15 and 150 $\mu$ M	
Incubation Time:	18 h	
Result:	Significantly inhibited cell invasion.	
<b>In Vivo</b>	<p>Abacavir (100 and 200 mg/kg, p.o.; 4 h) dose-dependently promoted thrombus formation<sup>[2]</sup>.</p> <p>Abacavir (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<sup>[3]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	
	Animal Model:	Male mice (9-weeks old, 22-30 g) - wild-type (WT) C57BL/6 or homozygous knockout (P2rx7 KO, B6.129P2-P2rx7 <sup>tm1Gab/J</sup> ) <sup>[2]</sup>
	Dosage:	2.5, 5 and 7.5 $\mu$ g/mL, 100 $\mu$ L or 100 and 200 mg/kg
	Administration:	Intrascrotal or oral administration for 4 h

Result:	Dose-dependently promoted thrombus formation.
Animal Model:	NSG <sup>TM</sup> mice, patient-derived xenograft (PDX) cells of non-WNT/non-SHH, Group 3 and of SHH/ TP53-mutated medulloblastoma <sup>[3]</sup>
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.
- Antiviral Res. 2023 Jul 15;105674.
- 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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