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Lieferung & Zahlungsart

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Zuschläge

- Mindermengenzuschlag
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- Gefahrgutzuschlag
- Expressversand

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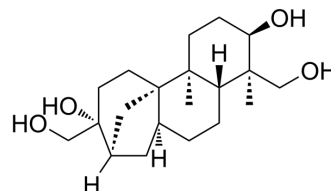
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Aphidicolin

Cat. No.:	HY-N6733		
CAS No.:	38966-21-1		
Molecular Formula:	C ₂₀ H ₃₄ O ₄		
Molecular Weight:	338.48		
Target:	DNA/RNA Synthesis; HSV; Apoptosis; Antibiotic; Orthopoxvirus		
Pathway:	Cell Cycle/DNA Damage; Anti-infection; Apoptosis		
Storage:	Powder	-20°C	3 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (147.72 mM; Need ultrasonic and warming)

Solvent	Mass	Concentration		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.9544 mL	14.7719 mL	29.5438 mL
	5 mM	0.5909 mL	2.9544 mL	5.9088 mL
	10 mM	0.2954 mL	1.4772 mL	2.9544 mL

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

BIOLOGICAL ACTIVITY

Description

Aphidicolin is an inhibitor of DNA polymerase α and δ , prevents mitotic cell division by interfering DNA polymerase activity. Aphidicolin is an antibiotic produced by mold *Cephalosporium aphidicola*, inhibits cellular deoxyribonucleic acid synthesis and the growth of herpes simplex virus. Aphidicolin exhibits anti-orthopoxvirus activity and potentiates apoptosis induced by arabinosyl nucleosides in a human promyelocytic leukemia cell line^{[1][2][3]}.

In Vitro

Aphidicolin (0.5 μ M, 5 μ M; 0-5 d) selectively kills neuroblastoma cells, but shows moderate cytotoxicity on normal human embryonal cells and HeLa, H9, A549 and Caco-2 cell lines^[4].
 Aphidicolin (0.4 μ g/mL; 3 d) arrests cell cycle at G2 phase^[5].
 Aphidicolin (100 nM-10 μ M; 48 h) inhibits cell proliferation via the p53-GADD45 β pathway and (1 μ M; 24 h) induces apoptosis in AtT-20 cells^[6].
 Aphidicolin (10 μ M; 0-6 h) decreases the phosphorylation of Akt, (100 nM-10 μ M; 24 h) increases the mRNA levels of the stress response gene growth arrest and DNA damage-inducible 45 β (GADD45 β), a putative downstream target of p53^[6].
 Aphidicolin (10 μ M; 0-6 h) inhibits Varicella-zoster virus (VZV) with EC₅₀s of 0.5-0.6 μ M, with low cytotoxicity^[7].
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.
 Cell Cytotoxicity Assay^[4]

Cell Line:	NB cell lines: UKF-NB-1/2/3 and IMR-32
Concentration:	0.5 μ M, 5 μ M
Incubation Time:	1, 2, 3, 4, 5 days
Result:	Resulted in cellular enlargement and extension of cellular processes before cell lysis occurred.

Cell Cycle Analysis^[5]

Cell Line:	Normal human diploid cells
Concentration:	0.4 μ g/mL
Incubation Time:	3 days or 7 days
Result:	Resulted more than 80% of the cells moved through S phase and were accumulated at G2 phase. Inhibited the growth of the cells completely without causing apparent cell death.

Western Blot Analysis^[6]

Cell Line:	AtT-20 cells pituitary corticotroph tumor cells
Concentration:	10 μ M
Incubation Time:	0 min, 5 min, 30 min, 2 h, 6 h, 24 h
Result:	Inhibited Akt phosphorylation in AtT-20 cells during 5 min-2 h, in a time-dependent manner. Increased protein level of p27 during 30 min-6 h, and remarkably increased p53 level at 24 h.

In Vivo

Aphidicolin, has been developed with higher solubility agent, namely Aphidicolin glycinate (AG; NSC 303812). Aphidicolin glycinate (100 mg/kg; i.p.; once every 3 h; 9 d) shows anti-tumor activity against the implanted B16 melanoma and M5076 sarcoma in murine, producing maximum increased life spans of 75%^[8]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	M5076 sarcoma s.c. model or B16 melanoma i.p. model in murine ^[8]
Dosage:	60 mg/kg, 100 mg/kg, 300 mg/kg
Administration:	Intraperitoneal injection; once every 3 h; 9 days
Result:	Inhibited tumor growth significantly.

CUSTOMER VALIDATION

- Nat Commun. 2023 May 26;14(1):3050.
- Nucleic Acids Res. 2023 Dec 1:gkad1141.
- Antivir Res. 2020 Nov;183:104931.

REFERENCES

- [1]. Cinatl J, et al. Aphidicolin selectively kills neuroblastoma cells in vitro. *Cancer Lett.* 1992 Dec 24;67(2-3):199-206.
- [2]. Kageyama K, et al. Aphidicolin inhibits cell proliferation via the p53-GADD45 β pathway in AtT-20 cells. *Endocr J.* 2015;62(7):645-54.
- [3]. Fukuda M, Ohashi M. Aphidicolin inhibits cell growth by accumulation of G2 cells. *Cell Biol Int Rep.* 1983 Aug;7(8):579-85.
- [4]. Rowe J, et al. Compounds that target host cell proteins prevent varicella-zoster virus replication in culture, ex vivo, and in SCID-Hu mice. *Antiviral Res.* 2010 Jun;86(3):276-85.
- [5]. O'Dwyer PJ, et al. Antitumor activity and biochemical effects of aphidicolin glycinolate (NSC 303812) alone and in combination with cisplatin in vivo. *Cancer Res.* 1994 Feb 1;54(3):724-9.
- [6]. Dresler SL, et al. Involvement of DNA polymerase delta in DNA repair synthesis in human fibroblasts at late times after ultraviolet irradiation. *Biochemistry.* 1988 Aug 23;27(17):6379-83.
- [7]. Bucknall RA, et al. Antiviral effects of aphidicolin, a new antibiotic produced by *Cephalosporium aphidicola*. *Antimicrob Agents Chemother.* 1973 Sep;4(3):294-8.
- [8]. Kuwakado K, et al. Aphidicolin potentiates apoptosis induced by arabinosyl nucleosides in human myeloid leukemia cell lines. *Biochem Pharmacol.* 1993 Dec 3;46(11):1909-16.
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Caution: Product has not been fully validated for medical applications. For research use only.

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