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Diagnostik & molekulare Diagnostik



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Lieferung & Zahlungsart

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Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
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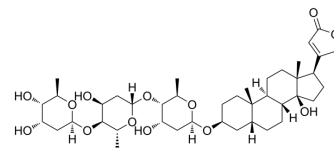
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Digitoxin

Cat. No.:	HY-B1357												
CAS No.:	71-63-6												
Molecular Formula:	C ₄₁ H ₆₄ O ₁₃												
Molecular Weight:	764.94												
Target:	Bcl-2 Family; Caspase; Apoptosis; HSV; Na ⁺ /K ⁺ ATPase; Calcium Channel												
Pathway:	Apoptosis; Anti-infection; Membrane Transporter/Ion Channel; Neuronal Signaling												
Storage:	<table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>2 years</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 year</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	2 years		-20°C	1 year
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 (130.73 mM; Need ultrasonic)			
		Solvent Concentration	Mass	
			1 mg	5 mg
	Preparing Stock Solutions		10 mg	
	1 mM	1.3073 mL	6.5365 mL	13.0729 mL
	5 mM	0.2615 mL	1.3073 mL	2.6146 mL
	10 mM	0.1307 mL	0.6536 mL	1.3073 mL
Please refer to the solubility information to select the appropriate solvent.				
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (3.27 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (3.27 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (3.27 mM); Clear solution 			

BIOLOGICAL ACTIVITY

Description	Digitoxin is an anti-cancer agent. Digitoxin induces apoptosis, inhibits influenza cytokine storm, causes DNA double-stranded breaks (DSBs) and blocks the cell cycle at the G2/M phase. Digitoxin induces calcium uptake into cells by forming transmembrane calcium channels and can be used for research of heart failure ^{[1][2][3][4][5]} .			
IC₅₀ & Target	Bcl-2	Caspase-9	Caspase 3	Bax
	HSV-1			

In Vitro

Digitoxin (0-80 nM, 72 h) compromised cell survival in PC12 cells^[1].
 Digitoxin (4-1000 nM, 24-48 h) has an antitumor effects in MHCC97H, A549, HCT116 and HeLa cells^[3].
 Digitoxin (4-100 nM, 24-48 h) disrupts the cell cycle in HeLa cells^[3].
 Digitoxin (20-500 nM, 48 h) activates mitochondrial apoptosis in HeLa cells^[3].
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.
 Cell Viability Assay^[3]

Cell Line:	MHCC97H, A549, HCT116 and HeLa cells
Concentration:	4-1000 nM
Incubation Time:	24 h, 48 h
Result:	Decreased the viability of these cancer cells in a dose- and time-dependent manner, with the IC ₅₀ values ranging from 0.075 to 0.395 μM following digitoxin treatment for 24 h and from 0.028 to 0.077 μM following digitoxin treatment for 48 h.

Cell Cycle Analysis^[3]

Cell Line:	HeLa cells
Concentration:	4 nM, 20 nM, 100 nM
Incubation Time:	24 h, 36 h, 48 h
Result:	Increased cell population in the G2/M phase from 16.27 to 18.36, 23.46 and 31.51% at concentrations of 20 nM for 12, 24 and 36 h. Increased average cell population in the G2/M phase from 16.27 to 28.07% at concentrations of 4, 20 and 100 nM for 24 h. Significantly decreased the protein expression levels of total CDK1 and phosphorylated CDK1.

Apoptosis Analysis^[3]

Cell Line:	HeLa cells
Concentration:	20 nM, 100 nM, 500 nM
Incubation Time:	48 h
Result:	Upregulated Bax expression and unaltered Bcl-2 expression. Significantly increased the expression of cytochrome c.

In Vivo

Digitoxin (1-2 mg/kg, Intraperitoneal injection, once a day for 19 days) has anticancer effects in nude mice^[3].
 Digitoxin (0.3-3 μg/kg, Intraperitoneal injection, once a day for 4 days) blocks the host over-production of cytokines in the cotton rat lung^[4].
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	nude mice harboring HeLa tumor xenografts ^[3]
Dosage:	1 mg/kg, 2 mg/kg
Administration:	Intraperitoneal injection (i.p.)
Result:	Decreased the tumor volume from 330.71±45.61 to 214.56.93±73.25 mm. Strongly increased the protein levels of cleaved caspase-3.

Reduced the number of Ki-67-positive cells.

Animal Model: cotton rats^[4]

Dosage: 0.3 µg/kg, 1 µg/kg, 3 µg/kg

Administration: Intraperitoneal injection (i.p.)

Result: Blocked cytokine storm.
Differentially affected cytokine expression.
Left immune cell density intact in virus-infected lung.

CUSTOMER VALIDATION

- Gynecol Oncol. 2024 Jul 5;188:162-168.
- Biochem Biophys Res Commun. 2020 Feb 19;522(4):862-868.
- University of Saskatchewan. 2020 Jun 22.
- Nat Metab. 2019 Nov;1(11):1074-1088.

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REFERENCES

- [1]. Haux J. Digitoxin is a potential anticancer agent for several types of cancer [J]. Medical hypotheses, 1999, 53(6): 543-548.
- [2]. Su C T, Hsu J T A, Hsieh H P, et al. Anti-HSV activity of digitoxin and its possible mechanisms [J]. Antiviral research, 2008, 79(1): 62-70.
- [3]. Gan H, Qi M, Chan C, et al. Digitoxin inhibits HeLa cell growth through the induction of G2/M cell cycle arrest and apoptosis in vitro and in vivo [J]. International Journal of Oncology, 2020, 57(2): 562-573.
- [4]. Pollard B S, Blanco J C, Pollard J R. Classical drug digitoxin inhibits influenza cytokine storm, with implications for COVID-19 therapy [J]. in vivo, 2020, 34(6): 3723-3730.
- [5]. Arispe N, et al. Heart failure drug digitoxin induces calcium uptake into cells by forming transmembrane calcium channels [J]. Proceedings of the National Academy of Sciences, 2008, 105(7): 2610-2615.

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

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