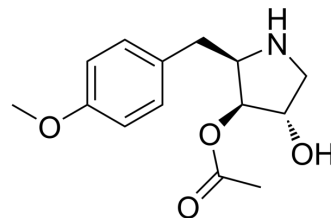


Anisomycin

Cat. No.:	HY-18982		
CAS No.:	22862-76-6		
Molecular Formula:	C ₁₄ H ₁₉ NO ₄		
Molecular Weight:	265.31		
Target:	DNA/RNA Synthesis; JNK; Apoptosis; Bacterial; Antibiotic; Parasite		
Pathway:	Cell Cycle/DNA Damage; MAPK/ERK Pathway; Apoptosis; Anti-infection		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 50 mg/mL (188.46 mM)
 H₂O : 4 mg/mL (15.08 mM; ultrasonic and warming and heat to 60°C)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	3.7692 mL	18.8459 mL	37.6918 mL
	5 mM	0.7538 mL	3.7692 mL	7.5384 mL
	10 mM	0.3769 mL	1.8846 mL	3.7692 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (9.42 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (9.42 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (9.42 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Anisomycin is a potent protein synthesis inhibitor which interferes with protein and DNA synthesis by inhibiting peptidyl transferase or the 80S ribosome system^[1]. Anisomycin is a JNK activator, which increases phospho-JNK^{[2][3]}. Anisomycin is a bacterial antibiotic^[4].

IC₅₀ & Target

JNK

DNA synthesis

In Vitro	<p>To examine whether JNK has a core role in colistin-induced neurotoxicity in PC-12 cells, an SP600125 (a highly selective inhibitor of JNK) and Anisomycin (a potent activator) are used in this study. In order to select an appropriate concentration, PC-12 cells are treated with a range of SP600125 (0-80 μM) and Anisomycin (0-20 μM) respectively for 24 h. The results show that the cells viability significantly decreases by SP600125 treatment in a concentration-dependent manner, observed at the concentrations greater than 20 μM ($p < 0.01$). Similarly the cells viability is inhibited by Anisomycin treatment ($\geq 8 \mu$M) ($p < 0.05$) [1].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>								
In Vivo	<p>Anisomycin (60 mg/kg; for 4-week continuous intravenous administration) significantly decreases mouse body weight in a dose-related manner, compared with the control group. Anisomycin (15 mg/kg; for 4-week continuous intravenous administration) slightly and transiently decreases the mouse body weight. There is no significant difference of the mouse body weight in 5 mg/kg group^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1" data-bbox="342 583 1513 821"> <tr> <td data-bbox="342 583 618 646">Animal Model:</td> <td data-bbox="618 583 1513 646">Balb/c mice of both sexes (4-5 weeks old)^[3]</td> </tr> <tr> <td data-bbox="342 646 618 709">Dosage:</td> <td data-bbox="618 646 1513 709">84, 99, 116, 136 or 160 mg/kg; 0.2 mL per mouse</td> </tr> <tr> <td data-bbox="342 709 618 772">Administration:</td> <td data-bbox="618 709 1513 772">Intravenously injected through mouse tail vein</td> </tr> <tr> <td data-bbox="342 772 618 821">Result:</td> <td data-bbox="618 772 1513 821">The calculated LD₅₀ for Anisomycin was 119.64 mg/kg.</td> </tr> </table>	Animal Model:	Balb/c mice of both sexes (4-5 weeks old) ^[3]	Dosage:	84, 99, 116, 136 or 160 mg/kg; 0.2 mL per mouse	Administration:	Intravenously injected through mouse tail vein	Result:	The calculated LD ₅₀ for Anisomycin was 119.64 mg/kg.
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CUSTOMER VALIDATION

- J Hazard Mater. 2020 Nov 15;399:122809.
- Cell Rep. 2021 Jul 20;36(3):109398.
- Diabetes. 2021 Oct 21;db210240.
- J Exp Clin Cancer Res. 2020 Feb 5;39(1):29.
- Anim Nutr. 15 September 2021.

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REFERENCES

- [1]. Lu Z, et al. Colistin-induced autophagy and apoptosis involves the JNK-Bcl2-Bax signaling pathway and JNK-p53-ROS positive feedback loop in PC-12 cells.
- [2]. Zhengle Tang, et al. In vivo toxicological evaluation of Anisomycin. Toxicol Lett. 2012 Jan 5;208(1):1-11.
- [3]. Gao X, et al. Transcriptional regulation of stress kinase JNK2 in pro-arrhythmic CaMKII δ expression in the aged atrium. Cardiovasc Res. 2018 Apr 1;114(5):737-746.
- [4]. Synthesis Marina Macías-Silva, et al. Anisomycin is a Multifunctional Drug: More than Just a Tool to Inhibit Protein. Current Chemical Biology, 2010, 4, 124-132.

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

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