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Lieferung & Zahlungsart

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Zuschläge

- Mindermengenzuschlag
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Anisomycin

Cat. No.: HY-18982

CAS No.: 22862-76-6

Molecular Formula: $C_{14}H_{19}NO_4$

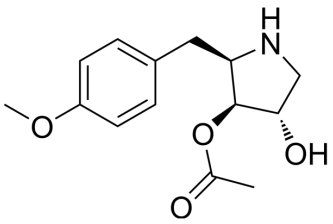
Molecular Weight: 265.31

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	1 year
	-20°C	6 months



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 50 mg/mL (188.46 mM)

H_2O : 4 mg/mL (15.08 mM; ultrasonic and warming and heat to 60°C)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	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

1. Add each solvent one by one: Saline
   Solubility: 3.33 mg/mL (12.55 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. 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
3. 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
4. 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].

IC_{50} & Target	JNK	DNA synthesis

In Vitro

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 (≥8 μM) ($p<0.05$) [1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

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].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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.

CUSTOMER VALIDATION

- J Hazard Mater. 2020 Nov 15;399:122809.
- J Exp Clin Cancer Res. 2020 Feb 5;39(1):29.
- Proc Natl Acad Sci U S A. 2023 Jan 31;120(5):e2213777120.
- Cell Death Dis. 2021 Jan 11;12(1):63.
- Cell Rep. 2021 Jul 20;36(3):109398.

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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 CaMKIIδ 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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