Cordycepin

Cat. No.: HY-N0262

CAS No.: 73-03-0

Molecular Formula: $C_{10}H_{13}N_5O_3$

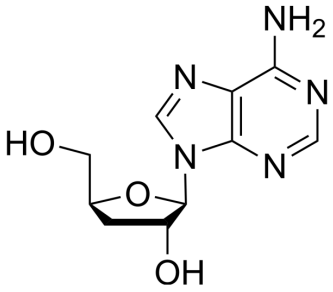
Molecular Weight: 251.24

Target: MMP; Autophagy; Bacterial; Antibiotic; TNF Receptor

Pathway: Metabolic Enzyme/Protease; Autophagy; Anti-infection; Apoptosis

Storage:

Powder	-20°C	3 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 33.33 mg/mL (132.66 mM; Need ultrasonic)

H_2O : 2 mg/mL (7.96 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.9803 mL	19.9013 mL	39.8026 mL
5 mM	0.7961 mL	3.9803 mL	7.9605 mL
10 mM	0.3980 mL	1.9901 mL	3.9803 mL

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

In Vivo

1. Add each solvent one by one: 50% PEG300 >> 50% saline
   Solubility: 12.5 mg/mL (49.75 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: PBS
   Solubility: 5.56 mg/mL (22.13 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
3. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (9.95 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (9.95 mM); Clear solution
5. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.95 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cordycepin (3'-Deoxyadenosine) is a nucleoside derivative and inhibits IL-1β-induced MMP-1 and MMP-3 expression in rheumatoid arthritis synovial fibroblasts (RASFs) in a dose-dependent manner[1]. Cordycepin kills ***Mycobacterium tuberculosis*** through hijacking the bacterial adenosine kinase[2].

IC_{50} & Target	MMP-1	MMP-3
In Vitro	Cordycepin is a potent inhibitor of IL-1β-induced chemokine production and MMP expression and strongly blocks the p38/JNK/AP-1 signalling pathway in RASFs. The effect of Cordycepin on cellular toxicity of RASFs is assessed using MTT assay. Treatment of RASFs with Cordycepin (50 μM or 100 μM) for 24 h does not cause any significant change in cell viability. However, cell viability is slightly decreased when cells are incubated with 100 μM Cordycepin for 48 h[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.	

PROTOCOL

Cell Assay [1]	RASFs (2×10^4 cells/well) are treated with various concentrations of Cordycepin (50 μM or 100 μM). After incubation for 1 h, 12 h and 24 h, cells are washed twice with PBS, MTT (0.5 mg/mL PBS) is added to each well and incubated at 37°C for 30 min. Formazan crystals formed are dissolved by adding DMSO (100 μL/well) and the absorbance is read at 570 nm using a microplate reader[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Plants. 2024 Jan 4.
- Nat Commun. 2019 Jun 10;10(1):25
- Cell Mol Life Sci. 2023 Nov 25;80(12):372.
- Int Immunopharmacol. 2023 Jan 31;116:109759.
- Biochem Biophys Res Commun. 2023 July 12, 665, 118-123.

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REFERENCES

[1]. Noh EM, et al. Cordycepin inhibits IL-1beta-induced MMP-1 and MMP-3 expression in rheumatoid arthritis synovial fibroblasts. Rheumatology (Oxford). 2009 Jan;48(1):45-8.

[2]. Huang F, et al. Cordycepin kills Mycobacterium tuberculosis through hijacking the bacterial adenosine kinase. PLoS One. 2019 Jun 14;14(6):e0218449.

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