Cordycepin

RNA synthesis inhibitor and bioactive nucleoside analog

Cordycepin is a naturally occurring nucleoside analog derived from Cordyceps militaris. It is structurally similar to adenosine but lacks a hydroxyl group at the 3′ position, allowing it to interfere with RNA synthesis. Cordycepin exhibits potent biological activity, including anticancer, antifungal, anti-inflammatory, and antioxidant effects. It inhibits RNA polymerase and induces apoptosis in various cancer cell lines, with reported IC_{50} values ranging from 10 to 50 μM, depending on the cell type.

Key features and applications include:

- **RNA Chain Termination:** Incorporates into RNA and halts elongation, making it a valuable tool for studying transcriptional regulation.
- **Apoptosis Induction:** Triggers caspase-dependent cell death in cancer cells via mitochondrial dysfunction and ROS generation.
- **AMPK Activation:** Modulates energy metabolism and inflammation through AMPK signaling.
- **Broad-Spectrum Activity:** Exhibits antifungal, antibacterial, and anti-metastatic properties.

Research Applications:

- Cancer biology and apoptosis studies
- RNA synthesis and gene expression regulation
- Inflammation and metabolic disease models
- Neuroprotection and aging research

Relevant disease states include:

- **Cancer:** Demonstrates cytotoxicity in breast, leukemia, and colon cancer models by disrupting RNA synthesis and promoting apoptosis.
- **Inflammatory Diseases:** Reduces pro-inflammatory cytokine expression and oxidative stress in models of arthritis and liver

inflammation.

- **Neurodegenerative Disorders:** Investigated for neuroprotective effects via modulation of oxidative stress and mitochondrial function.
- **Infectious Diseases:** Active against gram-positive bacteria and mycobacteria, with potential antifungal applications.

Ordering Information

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ENZ-CHM373-0050	50mg

Manuals, SDS & CofA

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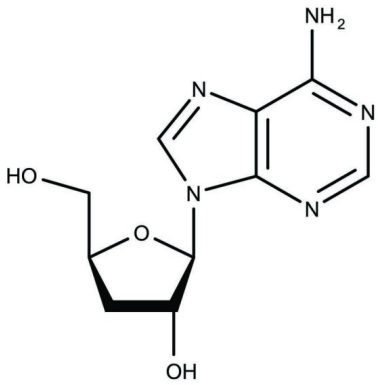
NH2
N
N
HO
N
N
O
OH

Handling & Storage

Use/Stability	As indicated on product label or CoA when stored as recommended.
Short Term Storage	-20°C
Long Term Storage	-20°C
Shipping	Ambient Temperature

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	3′-Deoxyadenosin, (2R,3R,5S)-2-(6-aminopurin-9-yl)-5-(hydroxymethyl)oxolan-3-ol
Appearance	White solid.
CAS	73-03-0
Couple Type	Inhibitor
Formula	$C_{10}H_{13}N_5O_3$
Identity	Determined by NMR.
MW	251.24
Purity	≥98% (HPLC)
Solubility	Soluble in DMSO (up to 25 mg/mL).

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