Ribavirin

Broad-spectrum antiviral nucleoside analog

Ribavirin is a synthetic guanosine analog with broad-spectrum antiviral activity. It is metabolized intracellularly to its active triphosphate form, which inhibits viral RNA-dependent RNA polymerase and induces lethal mutagenesis in viral genomes. Ribavirin also inhibits inosine monophosphate dehydrogenase (IMPDH), reducing GTP synthesis and viral replication. It has demonstrated EC_{50} values ranging from 2-95 µg/mL across various RNA and DNA viruses and 109.5 µM against SARS-CoV-2 in Vero cells.

Key features and applications include:

- **Broad Antiviral Spectrum:** Active against both RNA and DNA viruses, including RSV, HCV, HIV, influenza, and coronaviruses.
- **Multiple Mechanisms of Action:** Inhibits viral polymerases, depletes GTP pools via IMPDH inhibition, and induces error catastrophe in viral genomes.
- **Versatile Administration:** Used in oral, intravenous, and aerosolized forms in clinical and research settings.
- **Combination Therapy:** Commonly used with interferon-α or direct-acting antivirals (DAAs) in hepatitis C treatment.

Research Applications:

- Antiviral drug screening
- Viral replication and mutagenesis studies
- Host-virus interaction models
- Immunomodulatory and anti-inflammatory research

Relevant disease states include:

- **Hepatitis C Virus (HCV):** Historically used in combination therapy to enhance viral clearance.
- **Respiratory Syncytial Virus (RSV):** Administered via aerosol in severe pediatric infections.

- **Viral Hemorrhagic Fevers:** Investigated for use in Lassa fever and other high-mortality viral infections.
- **COVID-19:** Studied for its potential to inhibit SARS-CoV-2 replication.
- **Cancer Research:** Shown to inhibit tumor growth and metastasis in soft tissue sarcomas by downregulating PRMT1 and PRMT5.

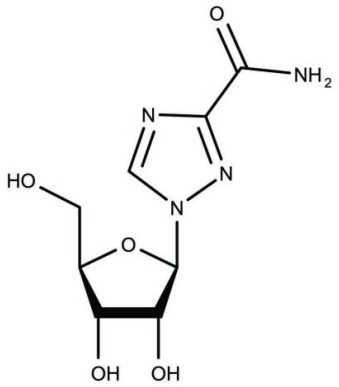
Ordering Information

Order Online »

ENZ-CHM342-0250	250mg

Manuals, SDS & CofA

View Online »


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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	Ribasphere, 1-[(2R,3R,4S,5R)-3,4-dihydroxy-5-(hydroxymethyl)oxolan-2-yl]-1,2,4-triazole-3-carboxamide
Appearance	White solid.
CAS	36791-04-5
Formula	$C_8H_{12}N_4O_5$
Identity	Determined by NMR.
MW	244.21
Purity	≥98% (TLC)
Solubility	Soluble in DMSO (up to 25 mg/mL) or in water (up to 25 mg/mL).

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