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 $\mu g/mL$ 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 directacting 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.

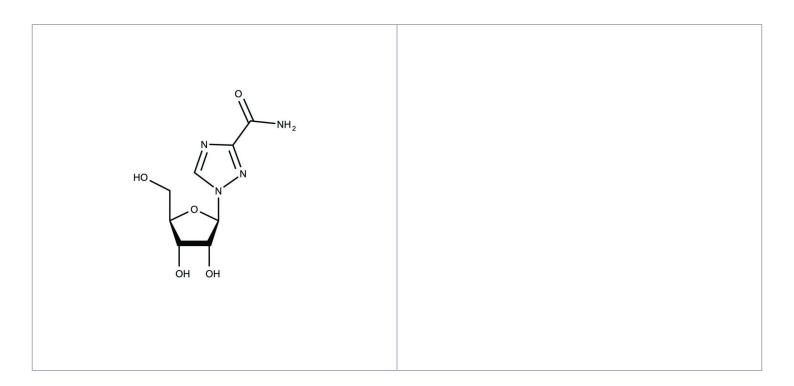
- Viral Hemorrhagic Fevers: Investigated for use in Lassa fever and other high-mortality viral infections.
- **COVID-19:** Studied for its potential to inhibit SARS-CoV-2 replication.
- Cancer Research: Shown to inhibit tumor growth and metastasis in soft tissue sarcomas by downregulating PRMT1 and PRMT5.

Ordering Information

Order Online »

Manuals, SDS & CofA





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).

Last modified: July 28, 2025

