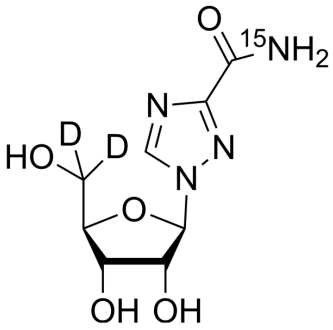
Ribavirin-$_{15}$N, d_2

Cat. No.:	HY-B0434S1
Molecular Formula:	$C_8H_{10}D_2N_3{}^{15}NO_5$
Molecular Weight:	247.21
Target:	RSV; Antibiotic; Orthopoxvirus; HCV; Isotope-Labeled Compounds
Pathway:	Anti-infection; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Ribavirin-^{15}N, d2 is ^{15}N and deuterated labeled Ribavirin (HY-B0434). Ribavirin (ICN-1229) is an antiviral agent against a broad spectrum of viruses including HCV, HIVl, and RSV. Ribavirin also has anti-orthopoxvirus and anti-variola activities.
In Vitro	Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1]. Treatmentof LPS-stimulated microglia with 5, 10 and 20 μM Ribavirin (ICN-1229) induces reduction of NO_2 levels for 43% ($p<0.05$), 53% ($p<0.05$) and 59% ($p<0.05$), respectively. Ribavirin (ICN-1229) (10 mM) insignificantly decreases the cell surface area in non-stimulated culture, but significantly reduces cell surface area (by 32%, $p<0.05$) in LPS-stimulated microglia[4]. Ribavirin (ICN-1229) is active against DENV, with an EC_{50} of 3 μM in A549 cells, and combination of CM-10-18 with Ribavirin (ICN-1229) demonstrates a clear enhancement in the reduction of virus replication[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	ALT, AST activities and bilirubin levels are significantly loared by administration of JAT in combination with interferon and Ribavirin (ICN-1229) ($p<0.01$). JAT, interferon or ribavirin alone with CCl_4, livers appear to exhibit some liver protection against CCl_4 as evident by the presence of normal hepatic cords, absence of necrosis and lesser fatty infiltration. Groups treated with JAT, Peg-interferon and Ribavirin (ICN-1229) separately or in combination shows reduction in the expression of TGF- β and Bax. In the group treated by triple combination of interferon, Ribavirin (ICN-1229), and JAT, the expression level of p53 is markedly reduced[2]. Ribavirin (ICN-1229) capsules (400 mg of ribavirin)-treated Wistar rats show a significant decrease in activin-A and significant increase in follistatin at the serum and liver levels. Ribavirin (ICN-1229) has strong antiviral activity only when ribavirin is combined with either IFN-α or Peg-IFN-α[3]. Ribavirin (40 mg/kg, p.o.) significantly improves the antiviral efficacy of CM-10-18 in mice. Ribavirin (ICN-1229) inhibits DENV virus infection in cultured cells, but it is ineffective in reducing viremia in monotherapy[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Savic D, et al. Ribavirin shows immunomodulatory effects on activated microglia. Immunopharmacol Immunotoxicol. 2014 Dec;36(6):433-41

[2]. Robert O Baker, et al. Potential antiviral therapeutics for smallpox, monkeypox and other orthopoxvirus infections. Antiviral Res. 2003 Jan;57(1-2):13-23.

[3]. Refaat B, et al. The effects of pegylated interferon-α and ribavirin on liver and serum concentrations of activin-A and follistatin in normal Wistar rat: a preliminary report. BMC Res Notes. 2015 Jun 26;8:265

[4]. Chang J, et al. Combination of α-glucosidase inhibitor and ribavirin for the treatment of dengue virus infection in vitro and in vivo. Antiviral Res. 2011 Jan;89(1):26-34

[5]. Abdel-Hamid NM, et al. Synergistic Effects of Jerusalem Artichoke in Combination with Pegylated Interferon Alfa-2a and Ribavirin Against Hepatic Fibrosis in Rats. Asian Pac J Cancer Prev. 2016;17(4):1979-85.

[6]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019 Feb;53(2):211-216.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA