Overview

Useful For
Assessing adequacy of ribavirin therapy or potential drug-related toxicity

Method Name
Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)

NY State Available
Yes

Specimen

Specimen Type
Serum

Specimen Required
Collection Container/Tube:
Preferred: Red top
Acceptable: Serum gel

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions:
1. Draw blood immediately before next scheduled dose.
2. Centrifuge and separate serum from cells or gel within 2 hours of draw.
3. Delay in removing serum may result in falsely-decreased ribavirin concentrations.

Forms
If not ordering electronically, complete, print, and send a Therapeutics Test Request (T831) with the specimen.

Specimen Minimum Volume
0.2 mL

Reject Due To

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<th>Gross hemolysis</th>
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</tr>
<tr>
<td>Gross icterus</td>
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Specimen Stability Information
**Clinical and Interpretive**

**Clinical Information**

Ribavirin is a nucleoside analog with antiviral activity against a number of RNA and DNA viruses, including hepatitis C virus (HCV). In combination with interferon, ribavirin is a treatment of choice for chronic HCV infection. In this setting, higher serum concentrations of ribavirin appear to correlate with the likelihood of achieving virological response; however, the drug dose is limited by concentration-dependent hemolytic anemia. Although no consensus therapeutic targets or toxic thresholds have been established, ribavirin concentrations between 2,500 and 4,000 ng/mL have been suggested to improve virological response and minimize toxicity.

The half-life of ribavirin is very long, typically 5 days or more. For this reason, steady-state concentrations are not achieved until several weeks into therapy; most studies have performed initial therapeutic monitoring after at least 28 days of ribavirin treatment. Specimens should be drawn immediately prior to the next scheduled dose, or at minimum of greater than 12 hours after the last dose.

Elimination of ribavirin is also very slow, and due to incorporation of the drug into red blood cells, may take up to 6 months after the cessation of therapy. Ribavirin has shown teratogenic activity in animal models, thus patients are recommended to practice stringent birth control until at least 6 months after the end of treatment.

**Reference Values**

2,500-4,000 ng/mL

**Interpretation**

Ribavirin concentrations greater than 2,500 ng/mL appear to correlate with greater likelihood of virological response in patients with chronic hepatitis C virus infection. Elevated concentrations in the setting of hemolytic anemia are consistent with ribavirin toxicity.

**Cautions**

Therapeutic targets have not been well established; reference values are provided as a guide to interpretation but are not definitive.

Serum must be removed from cells within 2 hours. Delayed processing can result in decreased ribavirin concentration.

**Clinical Reference**


Performance

Method Description
Serum samples are mixed with acetonitrile to precipitate proteins. The supernatant is removed, dried, reconstituted in water, and analyzed by an in-house developed liquid chromatography-tandem mass spectrometry method.(Unpublished Mayo method)

PDF Report
No

Day(s) and Time(s) Test Performed
Wednesday; 4 p.m.

Analytic Time
2 days

Maximum Laboratory Time
9 days

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees and Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact Customer Service.

Test Classification
This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

CPT Code Information
80299

LOINC® Information

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