Overview

Useful For
Monitoring serum concentration during therapy
Evaluating potential toxicity
May aid in evaluating patient compliance

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: 0.5 mL
Collection Instructions:
1. Serum for a peak level should be collected 1 to 2 hours after oral dose or 30 minutes after intravenous infusion. Trough specimens should be collected immediately prior to next scheduled dose.
2. Centrifuge and aliquot serum to plastic vial within 2 hours of collection.

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

Specimen Minimum Volume
0.3 mL

Reject Due To

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross hemolysis</td>
<td>OK</td>
</tr>
<tr>
<td>Gross lipemia</td>
<td>OK</td>
</tr>
<tr>
<td>Gross icterus</td>
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Specimen Stability Information

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
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<tbody>
<tr>
<td>Serum</td>
<td>Refrigerated (preferred)</td>
<td>28 days</td>
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<tr>
<td></td>
<td>Ambient</td>
<td>28 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
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Clinical & Interpretive

Clinical Information

Flucytosine is a broad-spectrum antifungal agent generally used in combined therapy (often with amphotericin B) for treatment of fungal infections such as cryptococcal meningitis. Concerns with toxicity (ie, bone marrow suppression, hepatic dysfunction) and development of fungal resistance limit the use of flucytosine, particularly as a monotherapy. The drug is well-absorbed orally but can also be administered intravenously (available outside of the United States).

There is good correlation between serum concentrations of flucytosine with both efficacy and risk for toxicity. Because of the drug’s short half-life (3-6 hours), therapeutic monitoring is typically performed at peak levels approximately 2 hours after an oral dose or 30 minutes after an intravenous administration.

Flucytosine is eliminated primarily as unmetabolized drug in urine. Patients with kidney dysfunction may require dose adjustments or more frequent monitoring to ensure that serum concentrations do not accumulate to excessive levels. Nephrotoxicity associated with use of amphotericin B can affect elimination of flucytosine when the drugs are coadministered.

Reference Values

Therapeutic concentration:
Peak >25.0 mcg/mL (difficult infections may require higher concentrations)

Toxic concentration:
Peak >100.0 mcg/mL

Interpretation

Most individuals display optimal response to flucytosine when peak serum levels (1-2 hours after oral dosing) are greater than 25.0 mcg/mL. Some infections may require higher concentrations for efficacy. Toxicity is more likely when peak serum concentrations are greater than 100.0 mcg/mL

Cautions

This test cannot be performed on whole blood. Serum must be separated from cells within 2 hours of collection.

Clinical Reference

1. Rifai N, Horvath AR, Wittwer CT, eds: Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018

Performance

Method Description
5-Flucytosine is extracted by mixing serum samples with an acetonitrile and methanol mixture to precipitate proteins. The supernatant is removed and analyzed by an in-house developed liquid chromatography-tandem mass spectrometry method. (Unpublished Mayo method)

PDF Report
No

Day(s) Performed
Tuesday, Thursday

Report Available
3 to 8 days

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees & 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 US Food and Drug Administration.

CPT Code Information
80299

LOINC® Information

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<td>3639-2</td>
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<td>Result ID</td>
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