Overview

Useful For
Monitoring therapy of patients with bipolar disorders, including recurrent episodes of mania and depression
Evaluating lithium toxicity

Method Name
Colorimetric

NY State Available
Yes

Specimen

Specimen Type
Serum

Specimen Required
Collection Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Submission Container/Tube: Plastic vial
Specimen Volume: 0.5 mL

Collection Instructions:
1. Draw blood 8 to 12 hours after last dose (trough specimen).
2. Serum gel tubes should be centrifuged within 2 hours of collection.
3. Red-top tubes should be centrifuged, and the serum aliquoted into a plastic vial within 2 hours of collection.

Additional Information: Peak serum concentrations do not correlate with symptoms.

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

Specimen Minimum Volume
0.25 mL

Reject Due To

<table>
<thead>
<tr>
<th>Gross hemolysis</th>
<th>Reject</th>
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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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</thead>
<tbody>
<tr>
<td>Serum</td>
<td>Refrigerated (preferred)</td>
<td>7 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>28 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ambient</td>
<td>72 hours</td>
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Clinical & Interpretive

Clinical Information
Lithium alters the intraneuronal metabolism of catecholamines by an unknown mechanism. It is used to suppress the manic phase of manic-depressive psychosis.

Lithium is distributed throughout the total water spaces of the body and is excreted primarily by the kidney.

Toxicity from lithium salts leads to ataxia, slurred speech, and confusion. Since the concentration of lithium in the serum varies with the time after the dose, blood for lithium determination should be drawn at a standard time, preferably 8 to 12 hours after the last dose (trough values).

Reference Values
Therapeutic: 0.5-1.2 mmol/L (trough concentration)
Critical value: >1.6 mmol/L
There is no relationship between peak concentration and degree of intoxication.

Interpretation
The therapeutic range for lithium has been established at 0.5 to 1.2 mmol/L. Within this range, most people will respond to the drug without symptoms of toxicity. However, response and side effects are individual. Lithium concentrations and side effects can increase with the loss of salt and water from the body, which can occur with a salt-free diet, excessive sweating, or an illness that causes vomiting and diarrhea. A variety of prescribed drugs, over-the-counter medications, and supplements can also increase, decrease, or interfere with the concentrations of lithium.

Cautions
No significant cautionary statements

Clinical Reference
Method Description
Colorimetric test. Lithium present in the sample reacts with a substituted porphyrin compound at an alkaline pH, resulting in a change in absorbance which is directly proportional to the concentration of lithium in the sample. (Package insert: Roche Lithium reagent, Roche Diagnostic Corp, Indianapolis, IN)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
Same day/1 day

Specimen Retention Time
1 week

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 account representative. For assistance, contact Customer Service.

Test Classification
This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer’s instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information
80178

LOINC® Information

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<td>Lithium, S</td>
<td>14334-7</td>
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<table>
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<th>Test Result Name</th>
<th>Result LOINC® Value</th>
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<td>LITH</td>
<td>Lithium, S</td>
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