Overview

Useful For
Monitoring clobazam therapy

Highlights
Both clobazam and norclobazam are detected in serum specimens.

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

NY State Available
Yes

Specimen

Specimen Type
Serum Red

Specimen Required
Collection Container/Tube: Red top
Submission Container/Tube: Plastic vial

Specimen Volume: 0.5 mL

Collection Instructions:
1. Draw specimen immediately before next scheduled dose.
2. Spin down within 2 hours of draw and move serum to plastic vial.
3. Trough specimens are recommended as therapeutic ranges are based on specimens drawn at trough (ie, immediately before the next dose).

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

Specimen Minimum Volume
0.35 mL

Reject Due To

<table>
<thead>
<tr>
<th>Gross hemolysis</th>
<th>OK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross lipemia</td>
<td>OK</td>
</tr>
<tr>
<td>Gross icterus</td>
<td>OK</td>
</tr>
</tbody>
</table>

Specimen Stability Information
### Clinical Information

Clobazam is a broad spectrum, antiepileptic drug used for various types of seizures, Lennox-Gastaut syndrome (a type of childhood onset epilepsy), and migraine prophylaxis. Clobazam blocks voltage-dependent sodium channels, potentiates gamma-aminobutyric acid (GABA) activity at some of the GABA receptors, and inhibits potentiation of the glutamate receptor and carbonic anhydrase enzyme, which all contribute to its antiepileptic and antimigraine efficacy. In general, clobazam shows favorable pharmacokinetics with good absorption (1-4 hours for the immediate-release formulation), low protein binding, and minimal hepatic metabolism. Elimination is predominantly renal and it is excreted unchanged in the urine with an elimination half-life of approximately 21 hours. As with other anticonvulsant drugs eliminated by the renal system, patients with impaired renal function exhibit decreased clobazam clearance and a prolonged elimination half-life.

Serum concentrations of other anticonvulsant drugs are not significantly affected by the concurrent administration of clobazam, with the exception of patients on phenytoin whose serum concentrations can increase after the addition of clobazam. Other drug-drug interactions include the coadministration of phenobarbital, phenytoin, or carbamazepine, which can result in decreased clobazam concentrations. In addition, concurrent use of posaconazole and clobazam may result in the elevation of clobazam serum concentrations. Therefore, changes in cotherapy with these medications (phenytoin, carbamazepine, posaconazole, or phenobarbital) may require dose adjustment of clobazam and therapeutic drug monitoring can be helpful. The most common adverse drug effects associated with clobazam include: weight loss, loss of appetite, somnolence, dizziness, coordination problems, memory impairment, and paresthesia.

### Reference Values

**CLOBAZAM**

Therapeutic Range: 30-300 ng/mL

**NORCLOBAZAM**

Therapeutic Range: 300-3,000 ng/mL

### Interpretation

The results of this test should be interpreted in conjunction with the patient’s physical signs, symptoms, and other laboratory test results.

Most individuals display optimal response to clobazam when serum levels of clobazam are between 30 and 300 ng/mL and n-desmethylclobazam are between 300 and 3,000 ng/mL. Risk of toxicity is increased when clobazam levels are above 500 ng/mL or n-desmethyloclobazam levels are above 5,000 ng/mL.

Some individuals may respond well outside of these ranges, or may display toxicity within the therapeutic range,
thus, interpretation should include clinical evaluation.

**Cautions**

No significant cautionary statements

**Clinical Reference**


**Performance**

**Method Description**

Methodology involves a simple deproteinization using acetonitrile, followed by dilution, and analysis by LC-MS/MS. (Unpublished Mayo method)

**PDF Report**

No

**Day(s) and Time(s) Test Performed**

Monday through Friday; 5 p.m.

**Analytic Time**

Same day/1 day

**Maximum Laboratory Time**

5 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.
### Test Definition: CLOBZ
Clobazam and metabolite, S

#### CPT Code Information
80339 (G0480 if appropriate)

#### LOINC® Information

<table>
<thead>
<tr>
<th>Test ID</th>
<th>Test Order Name</th>
<th>Order LOINC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLOBZ</td>
<td>Clobazam and metabolite, S</td>
<td>79408-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Result ID</th>
<th>Test Result Name</th>
<th>Result LOINC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>65483</td>
<td>Clobazam</td>
<td>3487-6</td>
</tr>
<tr>
<td>92363</td>
<td>N-desmethylclobazam</td>
<td>35107-2</td>
</tr>
</tbody>
</table>