Overview

Useful For
Monitoring serum concentration of fluoxetine during therapy
Evaluating potential toxicity
Evaluating patient compliance

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 (serum gel/SST are not acceptable)
Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions: Centrifuge and aliquot serum into 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
0.5 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

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum Red</td>
<td>Refrigerated (preferred)</td>
<td>28 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>
<td></td>
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</tbody>
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Clinical and Interpretive

Clinical Information

Fluoxetine is a selective serotonin reuptake inhibitor approved for treatment of bulimia, obsessive-compulsive behavior, panic disorders, premenstrual dysphoria, and major depressive disorder, with a variety of off-label uses. Both fluoxetine and its major metabolite, norfluoxetine, are pharmacologically active and are reported together in this assay. Most individuals respond optimally when combined serum concentrations for both parent and metabolite are in the therapeutic range (120-500 ng/mL) at steady state. Due to the long half-lives of parent and metabolite (1-6 days), it may take several weeks for patients to reach steady-state concentrations. Fluoxetine is a potent inhibitor of the metabolic enzyme cytochrome P450 (CYP) 2D6, with lesser inhibitory effects on CYP2C19 and CYP3A. Therapy with fluoxetine is, therefore, subject to numerous drug interactions, which is compounded by wide interindividual variability in fluoxetine pharmacokinetics. Measurement of the drug is useful for managing comedication, dose or formulation changes, and in assessing compliance. Side effects are milder for fluoxetine than for older antidepressants such as the tricyclics. The most common side effects of fluoxetine therapy include nausea, nervousness, anxiety, insomnia, and drowsiness. Anticholinergic and cardiovascular side effects are markedly reduced compared to tricyclic antidepressants. Fatalities from fluoxetine overdose are extremely rare.

Reference Values

Fluoxetine + Norfluoxetine: 120-500 ng/mL

Interpretation

Most individuals display optimal response to fluoxetine when combined serum levels of fluoxetine and norfluoxetine are between 120 and 500 ng/mL. Some individuals may respond well outside of this range or may display toxicity within the therapeutic range, thus interpretation should include clinical evaluation. A toxic range has not been well established.

Cautions

Specimens that are obtained from gel tubes or anticoagulate collections can cause assay interference.

Clinical Reference


Performance

Method Description

Serum samples containing fluoxetine and norfluoxetine are diluted in an aqueous solution containing deuterated internal standards, then injected onto a high turbulence liquid chromatography system for online extraction. Detection is by tandem mass spectrometry. (Unpublished Mayo method)

PDF Report

No

Day(s) and Time(s) Test Performed

Wednesday; 4 p.m.

Analytic Time

1 to 2 days

Maximum Laboratory Time

8 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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<thead>
<tr>
<th>Test ID</th>
<th>Test Order Name</th>
<th>Order LOINC Value</th>
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</thead>
<tbody>
<tr>
<td>FLUOX</td>
<td>Fluoxetine, S</td>
<td>78437-1</td>
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</table>
## Test Definition: FLUOX

Fluoxetine, S

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<tr>
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<th>Test Result Name</th>
<th>Result LOINC Value</th>
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<tbody>
<tr>
<td>80228</td>
<td>Fluoxetine, S</td>
<td>74982-0</td>
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<tr>
<td>251</td>
<td>Norfluoxetine, S</td>
<td>3868-7</td>
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<tr>
<td>252</td>
<td>Fluoxetine+Norfluoxetine</td>
<td>74948-1</td>
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