Test Definition: TRAM
Tramadol and Metabolite, U

Overview

Useful For
- Monitoring of compliance utilizing tramadol
- Detection and confirmation of the illicit use of tramadol

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

NY State Available
Yes

Specimen

Specimen Type
Urine

Advisory Information
If submitting for multiple tests on 1 order, submit a total volume of 5 mL per test ordered in a single plastic container.

Specimen Required

Supply: Aliquot Tube, 5 mL (T465)

Collection Container/Tube: Plastic urine container

Submission Container/Tube: Aliquot Tube, 5 mL

Specimen Volume: 2 mL

Collection Instructions: No preservative.

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

Specimen Minimum Volume
0.1 mL

Reject Due To
All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

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>Urine</td>
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<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>14 days</td>
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Clinical and Interpretive

Clinical Information
Tramadol, a centrally acting opioid analgesic, is utilized in the treatment of moderate to moderately severe pain. Tramadol acts as an opiate agonist through the binding of the parent drug and its O-desmethyl (M1) metabolite to mu-opioid receptors and through the weak inhibition of norepinephrine and serotonin reuptake. The active metabolite, O-desmethyltramadol, is a considerably more potent mu-opioid receptor agonist than its parent drug. In urine, approximately 30% of tramadol is excreted as unchanged drug, while approximately 60% is excreted as metabolites (N- and O-desmethyltramadol). The half-life of tramadol and O-desmethyltramadol is approximately 7 hours.

Reference Values
Cutoff: 25 ng/mL

Interpretation
The presence of tramadol or O-desmethyltramadol levels of 25 ng/mL or higher is a strong indicator that the patient has used tramadol.

Cautions
Urine concentrations do not correlate well with serum drug levels and are not intended for therapeutic drug management.

Results are intended to be interpreted by a physician or health care professional. This test is not intended for use in employment-related testing.

Clinical Reference

Performance

Method Description
Isotopically labeled tramadol and O-desmethyltramadol are added to the sample as internal standards. The sample is then diluted with deionized water and the analytes are separated by liquid chromatography and then quantified by mass spectrometry using multiple reaction monitoring. (Patel BN, Sharma N, Sanyal M, Shrivastav PS: An accurate, rapid and sensitive determination of tramadol and its active metabolite O-desmethyltramadol in human plasma by LC-MS/MS. J Pharm Biomed Anal 2009 Feb 20;49[2]:354-366)

PDF Report
No

Day(s) and Time(s) Test Performed
Tuesday, Thursday; 2nd shift

Analytic Time
2 days
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Maximum Laboratory Time
4 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
80373
G0480 (if appropriate)

LOINC® Information

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<th>Test Order Name</th>
<th>Order LOINC Value</th>
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<td>Tramadol and Metabolite, U</td>
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<table>
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<td>35915</td>
<td>O-desmethyltramadol</td>
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