MAYO CLINIC LABORATORIES

Test Definition: TAPEN

Tapentadol and Metabolite, Random, Urine

Overview

Useful For

Monitoring of compliance utilizing tapentadol

Detection and confirmation of the illicit use of tapentadol

This test is **not intended for use** in employment-related testing.

Special Instructions

- Clinical Toxicology CPT Code Client Guidance

Method Name

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

NY State Available

Yes

Specimen

Specimen Type

Urine

Additional Testing Requirements

If urine creatinine is required or adulteration of the sample is suspected, order ADULT / Adulterants Survey, Random, Urine in addition to this test.

Specimen Required

Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Collection Container/Tube: Plastic urine container
Submission Container/Tube: Plastic vial
Specimen Volume: 1 mL
Collection Instructions:
1. Collect a random urine specimen.
2. No preservative.

Additional Information:
1. No specimen substitutions.
2. STAT requests are **not accepted** for this test.
3. Submitting less than 1 mL will compromise our ability to perform all necessary testing.

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

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

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	14 days	
	Ambient	14 days	
	Frozen	14 days	

Clinical & Interpretive

Clinical Information
Tapentadol, a centrally acting opioid analgesic, is used in the treatment of moderate to severe acute and chronic pain and for the management of neuropathic pain associated with diabetic peripheral neuropathy in adults (extended-release formulation only). Tapentadol acts as an opiate agonist through its binding to mu-opioid receptors and through the inhibition of norepinephrine reuptake. About 97% of the parent drug is metabolized. The major pathway of tapentadol metabolism is conjugation with glucuronic acid to produce glucuronides. Tapentadol and its metabolites (N-desmethyltapentadol and hydroxyl-tapentadol) are excreted almost exclusively via the kidneys, and approximately 70% of the drug is excreted in urine in the conjugated form. The metabolites of tapentadol have no analgesic activity. The half-life of tapentadol is approximately 4 hours.

Opioid analgesics have high abuse potential and the regular use of tapentadol may result in physical dependence and tolerance. Tapentadol is a schedule II-controlled substance with abuse liability similar to other opioid agonists.

Reference Values
Negative (Positive result is reported with a quantitative result.)

Cutoff concentrations by liquid chromatography tandem mass spectrometry:
Tapentadol: 25 ng/mL
N-desmethyltapentadol: 25ng/mL; reported qualitatively (Present or Negative)

Interpretation
The presence of tapentadol or N-desmethyltapentadol levels of 25 ng/mL or higher is a strong indicator that the patient has used tapentadol.

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 other healthcare professional.

Clinical Reference

1. Tapentadol. In: Merative Micromedex. Merative; Accessed August 20, 2026. Available at: www.micromedexsolutions.com/
2. Jutkiewicz EM, Traynor JR. Opioid analgesics. In: Brunton LL, Knollmann BC, eds. Goodman and Gilman's: The Pharmacological Basis of Therapeutics. 14th ed. McGraw-Hill Education; 2023
3. Langman LJ, Bechtel LK, Holstege CP. Clinical toxicology. In: Rifai N, Chiu RWK, Young I, Burnham CAD, Wittwer CT, eds. Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023:454-454

Performance

Method Description

Isotopically labeled tapentadol and N-desmethyltapentadol 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.(Unpublished Mayo method)

PDF Report

No

Day(s) Performed

Tuesday, Thursday

Report Available

2 to 6 days

Specimen Retention Time

14 days

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Superior Drive

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 was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA

requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

G0480

80372 (if appropriate for select payers)

Clinical Toxicology CPT Code Client Guidance

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
TAPEN	Tapentadol and Metabolite, U	101401-8

Result ID	Test Result Name	Result LOINC® Value
35916	Tapentadol	65807-0
35917	N-desmethyltapentadol	65808-8