MAYO CLINIC LABORATORIES

Test Definition: HYDMU

Hydromorphone Confirmation, U

Overview

Useful For

Detection and quantification of hydromorphone in urine

Method Name

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

NY State Available

Yes

Specimen

Specimen Type

Urine

Ordering Guidance

For situations where chain of custody is required, a Chain of Custody Kit (T282) is available. For chain-of-custody testing, order OPATX / Opiates Confirmation, Chain of Custody, Random, Urine.

Additional drug panels and specific requests are available; call 800-533-1710 or 507-266-5700.

Additional Testing Requirements

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

Specimen Required

Supplies: Aliquot Tube, 5 mL (T465)

Collection Container/Tube: Plastic urine container

Submission Container/Tube: Plastic, 5-mL tube

Specimen Volume: 3 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 <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.

Reject Due To

Gross hemolysis	OK
Gross icterus	OK

Specimen Minimum Volume

1 mL

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	28 days	
	Frozen	28 days	
	Ambient	14 days	

Clinical & Interpretive

Clinical Information

Opiates are the natural or synthetic drugs that have a morphine-like pharmacological action. Medically, opiates are used primarily for relief of pain. Opiates include morphine and drugs structurally similar to morphine (eg, codeine, hydrocodone, hydromorphone, oxycodone).

Hydrocodone exhibits a complex pattern of metabolism including O-demethylation, N-demethylation, and 6-keto reduction to the 6-beta hydroxymetabolites. Hydromorphone is a metabolite of hydrocodone. The presence of hydrocodone above 100 ng/mL indicates exposure within 2 to 3 days prior to specimen collection.

Hydromorphone is metabolized primarily in the liver and is excreted primarily as the glucuronidated conjugate, with small amounts of parent drug and minor amounts of 6-hydroxy reduction metabolites. The presence of hydromorphone above 100 ng/mL indicates exposure within 2 to 3 days prior to specimen collection. Hydromorphone is also a metabolite of hydrocodone; therefore, the presence of hydromorphone could also indicate exposure to hydrocodone.

Reference Values

Negative

Cutoff concentration:

25 ng/mL

Interpretation

This procedure reports the total urine concentration; this is the sum of the unconjugated and conjugated forms of the parent drug.

Cautions

Other drugs in the opioid class, such as fentanyl, meperidine, methadone, and opiate antagonists such as naloxone, are not detected.

Clinical Reference

1. Gutstein HB, Akil H: Opioid analgesics. In: Brunton LL, Lazo JS, Parker KL, eds. Goodman and Gilman's: The Pharmacological Basis of Therapeutics. 11th ed. McGraw-Hill; 2006:chap 21

2. Baselt RC, ed: Disposition of Toxic Drugs and Chemical in Man. 9th ed. Biomedical Publications; 2011

3. Hackett LP, Dusci LJ, Ilett KF, Chiswell GM: Optimizing the hydrolysis of codeine and morphine glucuronides in urine. Ther Drug Monit. 2002;24(5):652-657. doi: 10.1097/00007691-200210000-00012

4. Langman LJ, Bechtel LK, Meier BM, Holstege C: Clinical Toxicology. In: Rifai N, Horvath AR, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018:832-887

Performance

Method Description

Confirmation with quantification by liquid chromatography/mass spectrometry (LC-MS/MS).(Unpublished Mayo method)

PDF Report
No

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees & Codes

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 US Food and Drug Administration.

CPT Code Information
80361

G0480 (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
HYDMU	Hydromorphone Confirmation, U	16998-7

Result ID	Reporting Name	LOINC®
62615	Hydromorphone-by LC-MS/MS	16998-7
36025	Hydromorphone Interpretation	18473-9