MAYO CLINIC LABORATORIES

Test Definition: OXYCX

Oxycodone with Metabolite Confirmation, Chain of Custody, Random, Urine

Overview

Useful For

Detection and quantification of oxycodone, oxymorphone, noroxycodone, and noroxymorphone in urine

Chain of custody is required whenever the results of testing could be used in a court of law. Its purpose is to protect the rights of the individual contributing the specimen by demonstrating that it was always under the control of personnel involved with testing the specimen; this control implies that the opportunity for specimen tampering would be limited.

Additional Tests

Test Id	Reporting Name	Available Separately	Always Performed
COCH	Chain of Custody Processing	No	Yes
ADLTX	Adulterants Survey, CoC, U	Yes	Yes

Testing Algorithm

Adulterants testing will be performed on all chain of custody urine samples as per regulatory requirements.

Method Name

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

NY State Available

Yes

Specimen

Specimen Type

Urine

Ordering Guidance

This test is for situations that require the chain-of-custody process. For testing **not** requiring chain of custody, order OXYCU / Oxycodone with Metabolite Confirmation, Random, Urine

Specimen Required

Supplies: Chain of Custody Kit (T282)
Container/Tube: Chain of custody kit containing the specimen containers, seals, and documentation is required.
Specimen Volume: 5 mL
Collection Instructions: Collect urine specimen in the container provided, seal, and submit with the associated documentation to satisfy the legal requirements for chain of custody testing.

Forms

1. Chain of Custody Request is included in the Chain of Custody Kit (T282).
2. If not ordering electronically, complete, print, and send a Therapeutics Test Request (T831) with the specimen.

Specimen Minimum Volume

2.5 mL

Reject Due To

Gross hemolysis	OK
Gross icterus	OK

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information

Oxycodone is metabolized to noroxycodone, oxymorphone, and their glucuronides and is excreted primarily via the kidney. The presence of oxycodone indicates exposure to oxycodone within 2 to 3 days prior to specimen collection.

Oxymorphone is metabolized in the liver to noroxymorphone and excreted via the kidney primarily as the glucuronide conjugates. Oxymorphone is also a metabolite of oxycodone, and therefore, the presence of oxymorphone could also indicate exposure to oxycodone.

The detection interval for opiates is generally 2 to 3 days after last ingestion.

Chain of custody is a record of the disposition of a specimen to document each individual who collected, handled, and performed the analysis. When a specimen is submitted in this manner, analysis will be performed in such a way that it will withstand regular court scrutiny.

Reference Values

Negative
Positive results are reported with a quantitative result.

Cutoff concentrations:

Immunoassay screen: 100 ng/mL

Liquid chromatography tandem mass spectrometry:
Oxycodone: 25 ng/mL
Noroxycodone: 25 ng/mL
Oxymorphone: 25 ng/mL
Noroxymorphone: 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. 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, Inc; 2023:chap 23
2. Baselt, RC. Disposition of Toxic Drugs and Chemical in Man. 10th ed. Biomedical Publications; 2014
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
4. 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:chap 43

Performance

Method Description

Oxycodone and its metabolite, oxymorphone, are analyzed via immunoassay. The assay uses specific antibodies that can detect oxycodone and oxymorphone without any significant cross-reactivity to other opiate compounds. The assay is based on the competition between a drug labeled with glucose-6-phosphate dehydrogenase (G6PD), and free drug from the urine sample for a fixed amount of specific antibody binding sites. In the absence of free drug from the sample, the specific antibody binds the drug labeled with G6PD and causes a decrease in enzyme activity. This phenomenon creates a direct relationship between the drug concentration in urine and enzyme activity. The enzyme activity is determined spectrophotometrically at 340 nm by measuring the conversion of nicotinamide adenine dinucleotide (NAD[+]) to NADH.(Package insert: OXY. Roche Diagnostics; V 3.0, 10/2022)

Confirmation with quantification by liquid chromatography tandem mass spectrometry.(Unpublished Mayo method)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available
2 to 5 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
80365 (if appropriate for select payers)
Clinical Toxicology CPT Code Client Guidance

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
OXYCX	Oxycodone w/metabolite Conf, CoC, U	94304-3

Result ID	Test Result Name	Result LOINC® Value
36300	Oxycodone Immunoassay Screen	19642-8
61728	Oxycodone-by LC-MS/MS	16249-5
35964	Oxymorphone-by LC-MS/MS	17395-5
36023	Oxycodone Interpretation	69050-3
36028	Chain of Custody	77202-0
42012	Noroxycodone-by LC-MS/MS	61425-5
42013	Noroxymorphone-by LC-MS/MS	90894-7