MAYO CLINIC LABORATORIES

Test Definition: ETGR

Ethyl Glucuronide Screen with Reflex, Random, Urine

Overview

Useful For

Screening and confirmation for drug abuse involving alcohol

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
ETGS	Ethyl Glucuronide Screen, U	Yes	Yes

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
ETGC	Ethyl Glucuronide Confirmation, U	Yes	No

Testing Algorithm

Testing begins with a screening assay. If the screen is positive, then the liquid chromatography tandem mass spectrometry confirmation with quantification will be performed at an additional charge.

Method Name

Enzyme-Linked Immunosorbent Assay (ELISA)

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 ETGX / Ethyl Glucuronide Confirmation, Chain of Custody, Random, Urine.

Additional Testing Requirements

If urine creatinine is required or adulteration of the specimen is suspected, the following test should also be ordered, ADULT / Adulterants Survey, Random, Urine.

Specimen Required

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

Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:
-Kidney Transplant Test Request
-Therapeutics Test Request (T831)

Specimen Minimum Volume

2.5 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)	28 days	
	Ambient	28 days	
	Frozen	28 days	

Clinical & Interpretive

Clinical Information

Ethyl glucuronide is a direct metabolite of ethanol that is formed by enzymatic conjugation of ethanol with glucuronic acid. Alcohol in urine is normally detected for only a few hours, whereas ethyl glucuronide can be detected in the urine for 1 to 3 days.

This procedure uses immunoassay reagents that are designed to produce a negative result when no drugs are present in a natural (ie, unadulterated) specimen of urine; the assay is designed to have a high true-negative rate. Like all immunoassays, it can have false-positives due to cross-reactivity with natural chemicals and drugs other than those they were designed to detect. The immunoassay can also have false negatives due to the antibody's ability to cross react with different drugs in the class being screened. When the screen result is positive, liquid chromatography tandem mass spectrometry will be performed to confirm the result.

Reference Values

Negative

Screening cutoff concentration: 500 ng/mL

Interpretation

If the screen result is negative, ethyl glucuronide concentrations were not detected.

If the screen result is positive, then confirmation by liquid chromatography tandem mass spectrometry will be performed.

A positive interpretation will be given if either the ethyl glucuronide (EtG) result is greater than or equal to 250 ng/mL and/or the ethyl sulfate (EtS) is greater than or equal to 100 ng/mL.

A "high" positive (ie, >1000 ng/mL) may indicate:
-Heavy drinking on the same day or previously (ie, previous day or 2).
-Light drinking the same day

A "low" positive (ie, 500-1000 ng/mL) may indicate:
-Previous heavy drinking (ie, previous 1 3 days).
-Recent light drinking (ie, past 24 hours).
-Recent intense "extraneous" exposure (ie, within 24 hours or less).

A "very low" positive (ie, 100-500 ng/mL) may indicate:
-Previous heavy drinking (ie, 1-3 days)
-Previous light drinking (ie, 12-36 hours).
-Recent "extraneous" exposure.(2)

Cautions

Care should be taken when interpreting results since there are many factors (eg, fluid intake and other biologic factors) that may influence a urine test result. It is possible that substances other than those investigated in the specificity study may interfere with the test and cause false-positive or negative results.

Clinical Reference

1. Schmitt G, Aderjan R, Keller T, Wu M. Ethyl glucuronide: an unusual ethanol metabolite in humans. Synthesis, analytical data, and determination in serum and urine. J Anal Toxicol .1995;19(2):91-94. doi:10.1093/jat/19.2.91
2. Dahl H, Stephanson N, Beck O, Helander A. Comparison of urinary excretion characteristics of ethanol and ethyl glucuronide. J Anal Toxicol. 2002;26:201-204. doi:10.1093/jat/26.4.201
3. Wurst FM, Skipper GE, Weinmann W. Ethyl glucuronide--the direct ethanol metabolite on the threshold from science to routine use. Addiction. 2003;98 (Suppl 2):51-61. doi:10.1046/j.1359-6357.2003.00588.x
4. Zimmer H, Schmitt G, Aderjan R. Preliminary immunochemical test for the determination of ethyl glucuronide in serum and urine: comparison of screening method results with gas chromatography-mass spectrometry. J Anal Toxicol. 2002;26(1):11-16. doi:10.1093/jat/26.1.11
5. Weinmann W, Schaefer P, Thierauf A, Schreiber A, Wurst FM. Confirmatory analysis of ethyl glucuronide in urine by liquid chromatography/electrospray ionization/tandem mass spectrometry according to forensic guidelines. J Am Soc Mass Spectrom. 2004;15(2):188-193. doi:10.1016/j.jasms.2003.10.010
6. 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

Performance

Method Description
This assay is a homogeneous enzyme-linked immunosorbent assay. The assay is semiquantitative. It is based on competition between free drug in the urine sample and a drug labeled with the enzyme glucose-6-phosphate dehydrogenase for a fixed amount of specific antibody binding sites. Active enzyme converts nicotinamide adenine dinucleotide (NAD[+]) to NADH, which results in an absorbance change that can be measured spectrophotometrically at 340 nm.(Package insert: ETG. Immunalysis; 03/2019)

PDF Report
No

Day(s) Performed
Monday through Saturday

Report Available
Same day/1 to 2 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
80307

LOINC® Information

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Test ID	Test Order Name	Order LOINC® Value
ETGR	Ethyl Glucuronide Scrn w/Reflex, U	58375-7

Result ID	Test Result Name	Result LOINC® Value
63420	Ethyl Glucuronide Screen, U	58375-7