

Overview

Useful For

Ethyl glucuronide (EtG) and ethyl sulfate (EtS) are direct biomarkers or metabolites of ethanol. EtG and EtS can be detected up to 5 days in urine using a cutoff of 500 ng/mL.(1) These biomarkers are often used in monitoring abstinence in clinical and justice system settings.

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

Supplies: Aliquot Tube, 5 mL (T465)

Collection Container/Tube: Plastic urine container

Submission Container/Tube: Aliquot Tube, 5 mL (T465)

Specimen Volume: 5 mL

Collection Instructions:

1. Collect a random urine specimen.
2. Submit 5 mL in 1 plastic bottle.
3. If submitting for multiple tests on 1 order, submit 5 mL per test ordered in a single plastic container.
4. No preservative.

Additional Information:

3. For additional information, refer to ADULT / Adulterants Survey, Urine.
4. Submitting <5 mL will compromise our ability to perform all necessary 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

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	
	Frozen	28 days	
	Ambient	72 hours	

Clinical and Interpretive**Clinical Information**

Ethyl glucuronide and ethyl sulfate are minor metabolites of ethanol which are detectable in body fluids following alcohol consumption and less commonly following extraneous exposure.

Reference Values

Negative

Interpretation

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

A "high" positive (ie, >1,000 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, 500-1,000 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

Please note that incidental exposure to alcohol in many daily use products (ie, hand sanitizers, mouthwash) may result in detectable levels of ethyl glucuronide (EtG) and/or ethyl sulfate (EtS).

In addition, upper respiratory infections as well as beta glucuronidase hydrolysis may lower levels of EtG, but do not seem to affect EtS.(2)

EtG/EtS results should be interpreted in the context of all available clinical and behavioral information.

Clinical Reference

1. Reisfield GM, Goldberger BA, Crews BO, et al: Ethyl glucuronide, ethyl sulfate, and ethanol in urine after sustained exposure to an ethanol-based hand sanitizer. J Anal Toxicol 2011;35:85-91
2. The role of biomarkers in the treatment of alcohol use disorders. 2012 Revision Substance Abuse and Mental Health Services Administration. Spring 2012;11(2):1-7

Performance**Method Description**

The urine sample is diluted with internal standard in 0.1% formic acid for detection by a tandem mass spectrometer (MS/MS).(Unpublished Mayo method)

PDF Report

No

Day(s) and Time(s) Test Performed

Tuesday, Thursday, Friday

Analytic Time

2 days

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

80321; G0480 (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
ETGC	Ethyl Glucuronide Confirmation, U	93705-2

Result ID	Test Result Name	Result LOINC Value
63421	Ethyl Glucuronide	58378-1
36848	Ethyl Sulfate	58425-0
36849	Ethyl Gluc/Sulfate Interpretation	59462-2