

IMPROVED ALCOHOL DETECTION TESTING - ETG ETHYL GLUCURONIDE

Ethyl glucuronide (EtG) is a minor metabolite of ethanol (ethyl alcohol). It is formed *in vivo* as a consequence of alcohol consumption. A small fraction (0.02%) of a dose of ethanol is conjugated in the liver with glucuronic acid to form ethyl glucuronide. This compound is excreted in the urine.

EtG can be detected in the blood for up to 36 hours and in the urine for up to 5 days after heavy ethanol use. A positive finding of EtG in urine of an individual provides strong evidence that the person recently consumed ethanol, even if the ethanol itself is no longer detectable. Therefore, this compound is regarded as a biomarker of ethanol consumption and, potentially, relapses of alcohol use by an individual who is under restriction.

Other biomarkers of ethanol use can be problematic since they can be influenced by age, gender, a variety of other substances and non-alcohol-associated disease. Fermentation may lead to false positives for ethanol since glucose and yeast may be present in the urine. This is especially possible if a urine sample is stored or shipped without refrigeration in warm weather. Since EtG is only created during the metabolism of ethanol, there is no potential for a wrong result due to external contamination.

Below is a list of the test specifications.

Scope:	Ethyl Glucuronide
Method of Analysis:	Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)
Specimen Requirement:	2mL Random Urine Stability: Urine samples were reported to be stable in storage for 4 days at 4 °C or at room temperature (22 °C). In addition, ethyl glucuronide did not form in blank urine samples when stored for 14 days at 4 °C or at room temperature.
Reporting Limits:	250 ng/mL to 25,000 ng/mL Note: All samples are qualitatively screened and quantitatively confirmed.
Reference:	Wurst, F.M., S. Seidl, D. Ladewig, F. Muller-Spahn and A. Alt (2002): "Ethyl glucuronide: on the time course of excretion in urine during detoxification," <i>Addiction Biology</i> 7: 427-434. Dahl, H., N. Stephanson, O. Beck and A. Helander (2002): "Comparison of urinary excretion characteristics of ethanol and ethyl glucuronide," <i>J. Anal. Toxicol.</i> 26: 201-204. Stephanson, N., H. Dahl, A. Helander and O. Beck (2002): "Direct quantification of ethyl glucuronide in clinical urine samples by liquid chromatography-mass spectrometry," <i>Ther. Drug Monitor.</i> 24: 645-651.

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