

STERLING NEWS & NOTES

A Report from Sterling Reference Laboratories

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ETHYLGLUCURONIDE

What is EtG? Why should I use this test?

EtG is a direct metabolite of ethyl alcohol (ethanol) and is a marker for recent alcohol exposure; it is non-volatile, water soluble, and stable. EtG is a test for ethanol that has entered the body and been processed by the liver; it is not a test for current impairment.

EtG testing utilizes liquid chromatography coupled with tandem mass spectrometry (LC/MS/MS) to detect the presence of EtG in urine. EtG may be detectable as soon as two hours after exposure and may be detectable for up to 96 hours after heavy ethanol consumption. This increased window of detection is superior to traditional ethanol testing.

EtG testing was first used in the US for monitoring in impaired health professional programs. EtG is most useful in testing individuals who should not be drinking at all and in evaluating the source of ethanol in the urine of a diabetic.

How reliable is EtG testing?

No false positives or interferences have been reported to date when using LC/MS/MS. The presence of EtG in body fluids is proof that ethyl alcohol exposure has occurred.

Incidental exposure (ethanol based medication, food sources, mouthwash, etc) could result in low level positives. The "normal" use of hand sanitizers at 62% ethanol has not been documented to give a positive result above 250 ng/mL, but anecdotal evidence suggests that heavy users may exceed that level. Further investigation is underway, but using a reporting cutoff of 250 ng/ml should significantly minimize the probability of a positive result being from incidental sources.

Can EtG results tell me how much ethanol has been consumed?

Again, any positive result means ethanol has been processed by the liver. EtG production is variable among individuals, so care must be taken not to try to read too much into the data from a randomly collected specimen, such as trying to tie a specific level to a specific amount of alcohol consumption.

While a positive result is reliable proof of recent ethanol exposure, the actual level detected is a function of the amount of alcohol consumed, the time interval since the last exposure and the individual's

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specific liver enzyme activity. In general, the higher the result the more recent and/or heavy the exposure has been.

How stable is EtG in a urine specimen?

EtG is stable in a urine specimen at room temperature for at least 4 days. Exposure to heat has been shown to actually increase the stability of EtG. There is nothing known to spontaneously produce EtG in a stored specimen. Certain bacteria such as *E. coli* have glucuronidase activity. EtG is not stable in a specimen containing these bacteria as a result of a urinary tract infection or specimen contamination. EtG will be slowly degraded by the bacteria, such that a false negative result may occur if testing is delayed by more than four days for this type of specimen.

OXYCODONE

What is Oxycodone?

Oxycodone is a semi synthetic opiate agonist derived from the opioid alkaloid thebaine. It is a Schedule II prescription drug for the control of moderate to severe pain that is related to morphine and hydrocodone. It may be prescribed in combination with other pain medications such as aspirin (Percodan) or acetaminophen (Percocet), or may be prescribed in time-release form (OxyContin). Abuse of prescription opiates such as oxycodone has sky-rocketed since the introduction of OxyContin in 1996.

If oxycodone is an opiate, why use a separate test?

Traditional opiate screening tests (immunoassays) are designed to detect heroin use. Therefore the detection potential of the tests is optimized for morphine, the primary heroin metabolite. Other related substances such as codeine and hydrocodone have adequate antibody cross-reactivity to be readily detected in a urine specimen. However, opiate immunoassays generally have a very low cross-reactivity for oxycodone and are therefore not well suited for monitoring oxycodone use.

What are my testing options if I suspect oxycodone abuse?

Standard opiate immunoassays will detect heavy oxycodone use, but lack the sensitivity needed to serve as an effective monitor of abuse. Maximum (continued next page)sensitivity can be achieved by using techniques such as gas chromatography /mass spectrometry (GC/MS), but this technology is labor

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intensive and may be too expensive for routine use. A commercial immunoassay is now available which has good sensitivity (100 ng/mL cutoff) and great specificity (minimal cross-reactivity with other opiates).

How can I order the oxycodone screening test?

The oxycodone test can be ordered just like any other test. You can have it included as a component of a basic test panel or as an optional add-on to a standard panel. All of your testing options such as confirmation method, etc. can be applied to this test. For optimal monitoring for opiate use, STERLING recommends using both the opiate screening and oxycodone screening tests.

ECSTASY

What Is Ecstasy?

Ecstasy is a designer methamphetamine frequently associated with Raves or the club scene. Chemically it is methylenedioxymethamphetamine (MDMA). This drug can produce both stimulant and psychedelic effects. MDMA is a popular "club" drug because it can reduce inhibitions, eliminate anxiety, and produce feelings of empathy.

If ecstasy is an amphetamine, why use a separate test?

Traditional amphetamine screening tests (immunoassays) are designed to detect amphetamine or methamphetamine use. Therefore the detection potential of these tests is optimized for methamphetamine and its metabolite amphetamine. MDMA and its metabolite methylenedioxyamphetamine (MDA) have adequate antibody cross-reactivity to be detected in a urine specimen. However, because of the lower cross-reactivity for these substances the window of detection is shortened to as little as 24 hours after use.

What are my testing options if I suspect ecstasy abuse?

Standard amphetamine immunoassays will detect recent ecstasy use, but lack the sensitivity needed to serve as an effective monitor of abuse. Maximum sensitivity can be achieved by using techniques such as gas chromatography /mass spectrometry (GC/MS), but this technology is labor intensive and may be too expensive for routine use. A commercial immunoassay is now available which has good sensitivity (500 ng/mL cutoff) and great specificity (minimal cross-reactivity with other substances).

How can I order the ecstasy screening test?

The ecstasy test can be ordered just like any other test. You can have it included as a component of a basic test panel or as an optional add-on to a standard panel. All of your testing options such as confirmation method, etc. can be applied to this test. For optimal monitoring for illegal stimulant use, STERLING recommends using both the amphetamine and ecstasy screening tests. This approach may be
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best suited for, but not necessarily limited to juvenile or young adult populations that frequent clubs or raves.

How can I get more information on EtG, oxycodone, Ecstasy or other topics?

For additional information regarding these or other tests please contact our technical support staff at (800) 442-0438. Since 1987 STERLING Reference Laboratories, located in Tacoma, Washington, has been an industry leader in drug and alcohol testing services. Fully accredited by the College of American Pathologists, STERLING offers a full suite of forensic testing for companies, government agencies, health care services, rehabilitation centers and correctional facilities. Our commitment to accuracy and personalized service translates to the assurance and confidence that our clients demand.