



Clients receive custom solutions with USDTL

by Heather Sliwinski
Sales and Marketing Associate

A drug treatment program participant claims they are sober. The program supervisor suspects a relapse. The participant is using an unusual drug of abuse. After hours of grueling research, the supervisor still cannot find a laboratory that tests for the drug, leaving them without options to monitor their participant.

Clients of USDTL run into the same obstacles, but experience different outcomes. We assist our clients by tailoring a monitoring program to meet their specific needs, even if the solution does not yet exist.



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USDTL can create custom tests for unusual drugs of abuse, like the anesthetic sevoflurane.

Recently, a valuable client contacted USDTL concerning a sevoflurane abuser in their treatment program. The program suspected a relapse, while the participant denied it. The program conducted a search for an organization that offered such a test. Without any success, the administrator contacted USDTL President and Scientific Director Douglas Lewis.

“I had never heard of sevoflurane being abused, so I didn’t know if the gaseous anesthetic would be entirely metabolized and present in a urine sample,” said Lewis. Lewis wanted to research the drug further with his new applications department to see if assay development would even be possible.

Lewis and his team are no strangers to developing new methods after a client inquiry. Vice President Joe Jones remembers developing an array of methods simultaneously for one client.

“At the specific request of a client, we developed, validated and launched 10 assays in about six months,” said Jones. “The standards were hard to find, and after an extensive search to obtain them, we still had to custom synthesize the internal standards.” But Jones kept working when other laboratories would stop, successfully launching the 10 new tests. In this case, the sevoflurane test would not be as tricky.

“After reviewing the literature, I found that sevoflurane is metabolized after use,” said Lewis, “and the metabolite is a common chemical found in a commercial laboratory.”

Once Lewis found the metabolite, hexafluoroisopropanol, he, Jones and Laboratory Director Chuck Plate, who has a doctorate in biochemistry, discussed the methods. Further research indicated that detection was possible using GC-

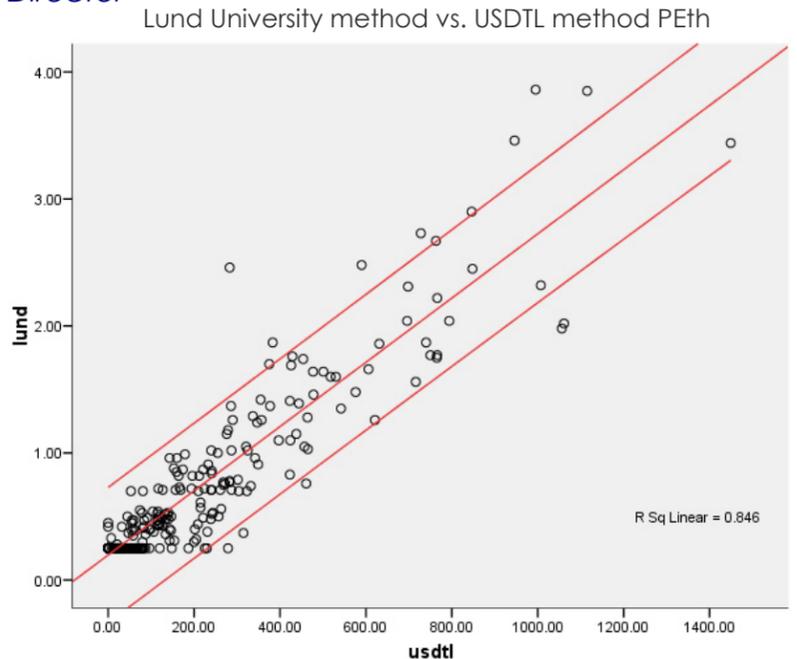
Phosphatidylethanol test more sensitive than CDT marker

by Douglas Lewis
President and Scientific Director

Recent studies have indicated that the direct alcohol biomarker phosphatidylethanol (PEth) is superior to indirect markers like carbohydrate deficient transferrin (CDT). PEth is a pathological phospholipid formed in tissues only by the action of phospholipase D on phosphatidylcholine and ethanol. PEth in blood remains in the red cell membrane until it spontaneously hydrolyses or is oxidized by lipid peroxidation.

USDTL took part in Dr. Marques’ DUI and biomarkers research by re-analyzing 281 blood specimens that had been previously analyzed for PEth at Lund University using a less sensitive HPLC/Light Scattering detector (LC/LCD). The LC/LCD has a limit of quantitation of 250 ng/mL of total PEth which represents 100 ng/mL of the specific isomer of PEth USDTL determines by LC/MS/MS. The USDTL method has a limit of quantitation of 20 ng/mL. As seen from the correlation chart, many specimens negative by LC/LSD were positive by USDTL’s LC/MS/MS method. Overall, the methods showed amazing agreement with an r^2 of 0.846.

Using LC/MS/MS methodology, PEth analysis can identify as little as one drink (12 grams EtOH) per day over a week’s period. As a direct biomarker, PEth is not subject to the numerous pathological conditions that can produce false positives for CDT. A CDT test can produce false-positive results for alcohol use when pathological conditions such as obstructive liver disease and liver cir-



rhosis, among others, are present. Also, improved test methods in PEth appear to have reduced the other issues related to gender and age. Because of the lack of false positives along with its high sensitivity for detecting alcohol consumption, researchers conclude that it’s the most sensitive and specific alcohol biomarker available.

For these reasons, USDTL now offers PETHStatSM using blood samples to test for alcohol exposure. The CDT assay requires consumption of 60 grams of ethanol per day for 10 days to 14 days to produce a positive, while PETHStatSM only requires about one drink a day per week. Therefore, pairing PETHStatSM with UrineStatSM EtG/EtS, offers a unique combination of alcohol biomarkers for added insurance for your drug testing program. Requested sample volume is 5 milliliters of blood, and results are available four days to seven days after the sample is received in the laboratory. Call 1-800-235-2367 to order PETHStatSM collection materials or visit www.usdtl.com for more information.

FID methodology, handing the reins to the GC-FID expert, Chetan Soni, who validated the assay in urine samples within the week.

“The client was very pleased with our timely results,” said Jones. “Their program now has a new tool at its disposal to assist with the recovery of this program participant.”

Within one week of the initial discussion, USDTL researched, developed, validated and launched an assay specific to a client’s needs.

“We are a laboratory business run by laboratory people, not businessmen,” said Lewis. “We have the capacity to get things done. If you run into a problem, just ask. We’ll do our best to see if we can solve it.”

Discuss your specific needs with one of our staff toxicologists at 1-800-235-2367.

contributions by Joe Jones, vice president

New ketamine test now available

by Joseph Jones
Vice President Laboratory Operations

USDTL now offers testing for ketamine and its metabolite norketamine in urine, hair and nail samples. The ketamine test is an add-on assay to any urine, hair or nails profile and may also be ordered separately. The ketamine assay uses liquid chromatography-tandem mass spectrometry testing, with cutoffs of 100 ng/mL for urine and 100 pg/mg for hair/nails.

Ketamine is marketed as a general anesthetic for human and veterinary use (Ketanest[®], Keta-set[®] and Ketalar[®]). Because of its dissociative properties, ketamine is diverted for recreational use and date rape, and has become a popular club drug. Ketamine is available as a clear liquid and a powder that may be injected, smoked or consumed in drinks.

According to the National Institute on Drug Abuse in 2007, 1 percent of eighth-graders, 0.8 percent of tenth-graders and 1.3 percent of twelfth-graders reported use of ketamine in the past year. Reports indicate an increase in ketamine abuse and fatal poisonings.

References

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