



**For Immediate Release
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Laboratory Awarded NIAAA Funding to Investigate The Epigenetics of Prenatal Alcohol Exposure

Des Plaines, IL - USDTL (United States Drug Testing Laboratory, Inc.) researchers will investigate the relationship between in utero alcohol exposure and epigenetics using Small Business Innovation Research (SBIR) funding from the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The goal of USDTL's new research program is to identify epigenetic patterns that are associated with prenatal alcohol exposure in newborns. Aileen Baldwin, Ph.D., MPH, Senior Scientist at USDTL, will lead the project.

At The Forefront of Newborn Toxicology

USDTL is currently able to detect and identify for research purposes the direct ethanol biomarker phosphatidylethanol (PEth) in newborn dried blood samples. PEth is produced by the body when a person drinks alcohol [1], and can be measured in blood samples up to three weeks following alcohol consumption. Research suggests that PEth can be detected in blood samples from newborns that were exposed to alcohol in late pregnancy following maternal consumption. Working with the University of Chicago Genomics Core Facility, USDTL will use the SBIR funds in basic research to examine if there are epigenetic changes in newborn dried blood samples that have tested positive for PEth.

Epigenetics involves changes to gene expression that are not caused by changes in the sequence of DNA. The addition of molecules called methyl groups to DNA (DNA methylation) is one such epigenetic change, which plays a critical role in newborn development. Studies using animal models have demonstrated that prenatal alcohol exposure alters DNA methylation patterns. These studies suggest that harmful effects from alcohol on the developing embryo occur through an epigenetic mechanism. USDTL researchers will investigate the patterns of DNA methylation of newborns that have been exposed to alcohol in the womb. According to Dr. Baldwin, "This research will be the first study to explore alcohol-associated epigenetic alterations using newborn blood spot samples." According to the 2012 National Survey on Drug

Use and Health, 8.5% of pregnant women drink during pregnancy, including 2.7% who report engaging in risky drinking behavior.

Bringing Expertise to Newborn Toxicology

As the principal investigator of this project, Dr. Baldwin has more than 10 years of experience in biomedical research in laboratory, clinical, and public health sectors. Dr. Baldwin received her doctorate and a Masters of Public Health degree from the Feinberg School of Medicine at Northwestern University. Prior to joining USDTL, Dr. Baldwin was awarded the Emile Roux and M. Cantarini postdoctoral fellowships to complete studies at the Pasteur Institute in Paris, France. Dr. Baldwin brings critical molecular genetics expertise for this project to bolster USDTL's decades of innovation and research in detecting alcohol exposure in newborns. "Coupling USDTL's PEth testing technology with epigenetics provides a unique approach to investigate prenatal alcohol exposure," said Dr. Baldwin.

As part of the National Institutes of Health, NIAAA provides SBIR funding support to organizations with the expertise to meet the challenges of alcohol related health issues. USDTL was the first laboratory to develop a commercially available alcohol biomarker to screen newborns for prenatal alcohol exposure, and has continued to lead the advancement of newborn toxicology.

For more information please visit <http://www.USDTL.com>

1. Mueller, G., Fleming, M. Lybrand, G. and Barry, K. (1988). Synthesis of phosphatidylethanol - A potential marker for adult males at risk for alcoholism. *Proceedings of the National Academy of Sciences*, 85, 9778-9782.

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For more information, press only:

Nancy Parra
Marketing Communications Manager
847-493-8881

nancy.parra@usdtl.com

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