## K8 Simultaneous Determination of HFBADerivatized Amphetamines and Ketamines in the Urine by GC-MS

*Jin Lian Tsai, PhD*, and Hei Hwa Lee, BS, Kaohsiung Chung-Ho Memorial Hospital, Kaohsiung Medical University, 100 Shih-Chuan 1st Road, Kaohsiung, 807, Taiwan*

After attending this presentation, attendees will learn about a new method for HFBA derivatives for amphetamines and ketamine and its metabolites using GC-MS.

This presentation will impact the forensic community and/or humanity by improving analytical cost and time.

This study developed a rapid, sensitive, and accurate method for the simultaneous determination of 8 commonly abused drugs/metabolites containing amine functional groups, i.e., amphetamine, methamphetamine, MDA, MDMA, MDEA, ketamine, norketamine and dehydronorketamine. The protocol included solid phase extraction, HFBA derivatization and GC-MS analysis, using $d_5$-amphetamine, $d_8$-methamphetamine, $d_5$-MDA, $d_5$-MDMA, $d_6$-MDEA, $d_4$-ketamine and $d_4$-norketamine as the internal standards. Identification of these compounds was based on retention time information and the relative abundance of the following ions established for each analyte as derivatized by HFBA: amphetamine: 240, 118, 91; methamphetamine: 254, 210, 118; MDA: 135, 162, 239; MDMA: 254, 162, 210; MDEA: 268,162, 240; ketamine: 210, 236, 370; norketamine; 384, 356, 377; dehydronorketamine: 314, 382, 169. The following analytical parameters have also been established: linear range: 100–2000 ng/ml; limits of detection and quantitations (all in ng/ml): 60 and 75 for amphetamine; 60 and 75 for methamphetamine; 75 and 100 for MDA; 75 and 100 for MDMA; 75 and 100 for MDEA; 30 and 50 for ketamine; 50 and 75 for norketamine and 50 and 125 for dehydronorketamine. The overall method recoveries of HFBA-derivatized amphetamine analogs were 92–99%, with less than 5% CV of intra-day and inter-day data. In conclusion, this method provides a uniform procedure for confirmation tests of the amphetamines and ketamine drug categories under workplace drug testing settings. Under clinical testing environment, it can be effectively used for the preliminary and confirmatory testing of these 8 drugs/metabolites, without the need for screening by three separate immunoassays, specific for amphetamine/methamphetamine, MDA/MDMA/MDEA, and ketamines, respectively.

**Ketamines, Amphetamines, GC-MS**

 ** Presenting Author*