New SAMHSA guidelines (October 2018) allow LC/MS/MS methods to be used for confirmation of certain drugs in government-certified (NLC) workplace drug testing labs. SAMHSA requires in analysis of 8 classes of drugs and metabolites in urine: 1) 6-monoacetylmorphine, 2) phencyclidine, 3) benzoylecgonine, 4) group of 5 anaphetamines, 5) morpheine and codeine, and 6) 11-nor-9-carboxy-Δ9-tetrahydrocannabinol. We present simplified LC/MS/MS confirmation methods, with sample preparation, for all SAMHSA-required categories using the latest equipment and separation tools from Agilent Technologies, including Bond Elut Plexa SPE mixed-mode polymeric SPE cartridges and a Poroshell 120 column. Without extensive sample pretreatment, solid-phase extraction on Plexa provides high extraction efficiency and reduced sample preparation time. In combination with mass spectrometry detection, these methods can be used for the simultaneous determination of a wide range of analytes.

**Results and Discussion**

**Chromatograms, Parallel 120 EC-C18, 3.8 x 3 mm, 2 µm**

**Examples of Calibration Curves**

**Conclusions**

- Present methods meet SAMHSA requirements for LOD, linearity, accuracy, and precision, and LC separation provides for the lowest detection and quantitation limits.
- High process efficiency, extraction recoveries, and significant matrix effects demonstate excellent quality of Agilent Bond Elut Plexa SPE.
- All LC separations use the same Agilent Poroshell 120 EC-C18 columns and utilize traditional LC conditions at 40°C, while mobile phases and no column heating. The longest separation (phenazone) is completed within 2 minutes.
- MS methods use low sample injection volumes (2 – 10 µL), as sample on-column derivatization and demonstrate the robustness of the methods for the lowest SAMHSA-required concentrations due to the enhanced sensitivity of ESI QQQ with Jet Stream electrospray source.