PW21 The Analysis of Alprazolam in Synthetic Urine via Dual Column Switching

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Analysis of urine for Alprazolam without sample preparation using 2 column switching system automated by a software program.

The quantification of Alprazolam as a drug of abuse in urine has traditionally been performed by GC/MS, followed SPE extraction. This requires substantial time in sample preparation and run time. A novel method utilizing 2 columns, a switching valve, 2 LC pumps, and a triple quadruple mass spectrometer is described here. This method requires no sample clean up prior to injection onto the LC column.
Injection of synthetic human urine containing Alprazolam and Alprazolam-d5 were injected onto 2 Thermo Hypersil GOLD reverse phase column. Two pumps were used; one to elute the compound, the second to re-equilibrate and wash the off line column. Upon elution of the analytes, the valve is actuated and the next injection is performed. A triple quadruple mass spectrometer, Thermo Scientific TSQ Quantum Discovery MAX, is used to analyze compounds.
A standard curve was prepared in synthetic human urine (UriSub, CST Technologies, Inc.) covering ranges 7.8 to 500ng/mL. Three quality controls were prepared at 11.7, 187.5 and 750ng/mL and a second set of standards was prepared at 1:10 dilution of the calibrators and QCs using di-water. The calibration curves are linear over both of the ranges described above. The columns showed no deterioration in quality or performance. Even at 1:10 dilution, the calibration curve is linear and well above the detection limit of the instrument.