K15 Performance Characteristics of the Cozart® EIA Cannabinoids Microplate Kit for Oral Fluid in Comparison With GC-MS

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After attending this presentation, attendees will understand the analysis of cannabinoids in oral fluid by ELISA and GC-MS.

This presentation will impact the forensic community and/or humanity by providing information on the testing of cannabinoids in oral fluid and detailing the analysis of samples collected from individuals being monitored for drug use.

Goals: This project was carried out to evaluate the performance characteristics of the Cozart® EIA Cannabinoids microplate as a preliminary screening device for delta-9-tretrahydrocannabinol (∆9-THC) in oral fluid.

Methods: Oral fluid samples (N=100) were collected from individuals being monitored within a drug treatment program and were screened according to the manufacturers instructions. Samples were collected using the Cozart® RapiScan collection system, which included a 1:3 dilution of the sample in a preservative buffer. All samples, calibrators (0, 6, 30, and 150 ng/mL equivalent in neat oral fluid) and controls (0 and 45ng/mL) were assayed in duplicate. Gas chromatography–mass spectrometry (GC-MS) confirmation for ∆9-THC was carried out on all samples. The LOQ/LOD for ∆9-THC was 3 ng/ml by GC-MS.

Results: Of the samples screened 75 screened positive and 25 screened negative, 73 were confirmed positive for ∆9-THC and 27 were confirmed negative by GC-MS. Concentrations of ∆9-THC ranged from the LOD of 3 ng/ml to greater than 1µg/ml. Sensitivity and specificity for the assay were 100% and 93% respectively.

Conclusions: The Cozart® EIA Cannabinoids Microplate Kit for oral fluid employing a 30ng/ml cut-off had good sensitivity and specificity with an overall assay agreement of 98% with GC-MS and provided adequate performance as a screening procedure for the identification of ∆9-THC in oral fluid.

Cannabinoids, ELISA, Oral Fluid

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