



K18 Validating Immunoassay ELISA Kits to Detect Eighteen Benzodiazepines at Low Levels

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After attending the presentation, attendees will understand the process of validating an immunoassay benzodiazepine ELISA kit for low concentration of drugs.

This presentation will impact the forensic science community by demonstrating how changing the experimental parameters for an ELISA kit will allow you to detect more drugs at needed concentrations.

Reports have shown that 30-40% of drivers take benzodiazepines and that the use of these drugs could have impairing effects. The Orange County Crime Lab (OCCL) recently validated an immunoassay benzodiazepine ELISA screen to detect the 22 benzodiazepines confirmed by an LC/MS/MS method at similar detection levels. The main benzodiazepines prevalent in casework are alprazolam, diazepam, lorazepam, and clonazepam and detection limits of 2, 10, 4, and 3 ng/mL, respectively are required. The validation process addressed limits of detection, blanks, sample volumes, possible interferences, and saturation curves for all detected benzodiazepines. The validation determined that Temazepam at 3 ng/mL is the best benzodiazepine to use for the limit of detection, and allows the OCCL to detect 18 of the 22 benzodiazepines seen via LC/MS/MS. Only four benzodiazepine metabolites yield false negative results when no other benzodiazepines are present.

ELISA Validation, Benzodiazepines, Low Concentrations