PYROSEQUENCING FOR THE IDENTIFICATION OF FORENSICALLY RELEVANT BODY FLUIDS: COMPARISON TO CURRENT SEROLOGICAL METHODS AND A PROPOSED FORENSIC WORKFLOW

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Previously identified and studied markers for the identification of blood, semen, saliva and vaginal epithelial (cg06379435, BCAS4, ZC3H12D and PFN3A, respectively) were evaluated for the ability to detect individual fluids in mixtures. Samples of individual body fluids were serially diluted (1:1 to $1:10^6$) and tested with pyrosequencing and a current method of detection for each body fluid, including Hematrace, ABA P30, and Phadebas tests to compare the limit of detection for the pyrosequencing identification and other methods of identification. Mixtures of body fluid DNAs were generated and genotypes were obtained and compared to pyrosequencing results was used to detect the individual cell types. From this data we provide guidance for the use of pyrosequencing for the detection of body fluids following amplification and interpretation of genotypes, providing an alternate approach for body fluid detection in mixed samples.