ULTRA-FAST PCR OF SELECTED mRNA MARKERS FOR FORENSIC BODY FLUID IDENTIFICATION

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Correct identification of a body fluid type from a crime scene is crucial in some crime cases such as sexual assaults. We have recently reported a set of mRNA markers for forensic body fluid identification using a multiplexed qRT-PCR method. Here, we report an alternative assay method based on ultra-fast real-time PCR machine which requires as low as 50 pg of total RNA as an input material. When we tested 10 markers (3 for blood, 3 for semen, 2 for saliva, and 2 for vaginal secretion) in 138 samples, we obtained an overall accuracy of body fluid identification as high as 97.9%. We found that PPBP and CCL5 were good markers for blood identification and MSMB and NKX3-1 were good markers for semen identification. We suggest that ultra-fast real-time PCR based assay is appropriate for forensic use as it is fast, accurate, and requires low input material.