

ASSESSMENT OF THE CASEWORK IMPLEMENTATION OF MESSENGER RNA BODY FLUID TESTING

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At ESR we have developed a multiplex PCR system known as CellTyper that utilises messenger RNA (mRNA) and can identify blood, saliva, semen, menstrual blood and vaginal material in individual stains or in mixtures of body fluids. Messenger RNA transcripts specific to each type of body fluid have been identified and a multiplex reverse transcriptase-polymerase chain reaction (RT-PCR) system developed to identify these body fluids along with three housekeeping genes. This multiplex can detect semen and seminal fluid (semen without spermatozoa present). Furthermore, we have targeted the co-isolation of RNA and DNA from the same sample and, using the RT-PCR CellTyper multiplex, we can determine the type of body fluid present while also generating a DNA profile from the same stain. Here we undertake a summary of cases undertaken since implementation. This includes an assessment of operational requirements such as quality control and quality assurance activities. Aspects of the limitations and reporting of such new technology and opportunities for improvement will be discussed with case work examples. ☘