USE OF PSA SEMIQUANT FOR THE IDENTIFICATION OF SEMINAL FLUID

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The Forensic Science Service receives a large number of cases each year that involve sexual or indecent assault on the victim. In such cases a variety of samples may be received from intimate swabs, to items of clothing, to samples taken from outside following exposure to a number of uncontrollable elements.

Current methods employ the use of an Acid Phospatase (AP) test to identify areas of semen staining, and the presence of spermatozoa is then confirmed through microscopic examination. In cases where no sperm heads are identified i.e. where the suspect is oligospermic or azoospermic, further tests are conducted to confirm the source (seminal or vaginal) of the AP activity detected. Acid Phospatase Precipitation (APP) tests and choline tests detect levels of human-specific AP and choline respectively but both are known to be relatively insensitive, unreliable and time consuming.

Prostate Specific Antigen (PSA) however, is a glycoprotein specific to the male genitourinary tract. Its primary application is the early detection of abnormal PSA levels within blood serum. However, its principle can be utilized within forensic science to potentially provide an improved means of identifying human seminal fluid.

Immunoassy PSA kits have proven to be a reliable and sensitive tool for the identification of human seminal fluid within the forensic environment (A.L. Morris: Journal of Forensic Science 1999). Recent work has determined associated procedural limitations and the reliability and reproducibility of test results, allowing the kits to be piloted within operational case-working laboratories.

This presentation will detail the results obtained from both the initial evaluation and the more recent pilot study, and consequent recommendations for future use within the forensic environment.