# SERATEC® PSA SEMIQUANT AND RSID-SEMEN COMBINATION FOR DETECTION OF HUMAN SEMEN

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Forensic biological examination for rape investigation frequently involves the use of protein-based immunological assays such as SERATEC® PSA Semiquant and RSID-Semen kits, for the rapid identification of core semen proteins, prostate specific antigen (PSA) and Semenogelin (Sg) respectively. These kits, usually used as standalone assays to confirm the presence of semen, may suffer from insufficient specificity in some circumstances. To deal with this potential problem, we evaluated the combination of both kits as a more robust mean of ascertaining the presence of semen. It would be desirable that the sexual assault evidence be extracted in a common medium that is compatible for DNA extraction. In this respect, the RSID-Semen kit's Extraction Buffer and Running Buffer were selected as the sensitivity of the SERATEC® PSA kit was unaltered by the RSID-Semen kit's buffers. Both SERATEC® PSA and RSID-Semen kits were demonstrated to be specific and sensitive – both are able to detect minute amounts of semen as low as 1.25nL and 187.5nl respectively. Accuracy of this combined approach was assessed by carrying out PSA and Sg analysis in 169 casework rape and autopsy swabs and subsequently, subjecting them to Y-STR analysis. On the basis of positive and negative results from each assay and sample, data were classified into four categories (I–IV). All samples with positive PSA and Sg results (Category I) recovered male DNA profiles, indicating 100% accuracy. Similarly, 98% of the samples with negative PSA and Sg results (Category IV) showed no male DNA profiles, implying 98% accuracy. In contrast, the accuracy levels decrease when inconsistent semen test results were observed (Category II and III). These findings support the combined use of both kits as a confirmatory test for semen.