COMPARATIVE STUDY BETWEEN A NEW FORENSIC REAGENT STK™ SPERM TRACKER VERSUS MULTISPECTRAL ALTERNATIVE LIGHT SOURCES (ALS) TO DETECT SPECIFICALLY SPERM TRACES ON SWAB AND FABRICS IN REAL SEXUAL ASSAULT CASES

Fabrice Kabile, Alexandre Poussard, Guillaume Calvayrac, Nathalie Angelini, Carole De Mari and Sylvain Hubac
Forensic Science Laboratory of the French Gendarmerie (IRCGN)

It is estimated that more than 5 million rapes are committed globally each year and 1 woman out of 5 will face rape during her lifetime. For 1 000 rapes, only 4.6 rapists will go to jail because rape is highly under-reported but also because classic ALS miss a great number of semen stains. Specific semen stains localization is an important challenge amongst the variety of biological fluids present on evidences.

These detections are often performed using non-fully specific techniques, leading to a great proportion of false positives and even worse, false negatives (missed stained). We are here presenting the results of a comparative study between classical lamp examination and the newly available product STK™ Sperm Tracker, which is a highly specific biological reagent to locate semen traces.

In our recent study, more than 700 criminalistics evidences were tested using both forensics lamps, and STK™ Sperm Tracker. These evidences, including different swabs (buccal, vaginal, rectal, etc…), and fabrics were tested for spermatozoid presence. Then, an evaluation of male DNA presence, and the ability to perform a profiling was characterized. All the results are presented and discussed.

Using STK™ Sperm Tracker, benefits on real rape cases resolution are presented, the reduction of false positives, the revelation of unseeing stains. This biochemical technic is robust and can be done on old dry evidences. For instance, a 25 years old cold case, where sperm presence was revealed on a bed cover.