B101 A Novel Real Time PCR Method for Evidence Screening That Simultaneously Detects and Quantitates Human Male DNA

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After attending this presentation, attendees will understand a high through-put sexual assault evidence screening method that is highly reliable and less laborious and time consuming.

There are hundreds of sexual assault rape kits waiting for DNA analysis so that the DNA profile of the rapist can be compared with the

CODIS database. This presentation will impact the forensic community and/or humanity by providing forensic analysts a rapid and high through put method to screen these rape kits to identify the samples which can be further analyzed to produce up loadable DNA profile.

The preliminary screening of forensic evidence samples for the presence of male chromosomal DNA can be one of the most time- consuming and difficult parts of the investigative process. The meticulous task of microscopy requires valuable human resources. Also, quantitation of total DNA and male chromosomal DNA is an extra step that can further consume machine and reagent resources. It is important to conserve forensic evidence therefore, knowing the concentration of DNA gives a limit on how much processing can be performed on a sample. Reliagene Technologies, Inc. has developed a novel forensic sample screening kit that incorporates the ability to simultaneously detect male chromosomal DNA and quantitate the male DNA. Because this system utilizes Real-Time PCR it allows one to amplify, detect and quantitate in only the time it takes to run several cycles. The built-in male DNA quantitation is useful when processing the mixed sample so as to isolate suspect sperm cells from victim epithelial cells. The screening kit methodology is based on detection of human-specific *Alu* insertions that are interspersed throughout the nuclear genome. The *Alu* family of interspersed repeats has a number of advantages as human identity tools that set them apart from STRs. This genetic system enables screening of all types of biological samples on a rapid and sample conservative basis. No differential extraction is needed to evaluate the sample. Further, individual assays can be performed on as little as 10% of the evidence sample and adapted to a 96 well format to facilitate high-throughput screening. Comparative results of screening of sexual assault kits using P30, microscopy examination and Y- DetectRT system will be presented.

DNA Test, Sexual Assault, Evidence Screening

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