

“DIRECT-TO-DNA” APPROACH FOR SCREENING OF MALE DNA IN SEXUAL ASSAULT KITS

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To undertake the increased demand and workload from sexual assault cases, forensic DNA managers and supervisors have evaluated methods to streamline processes and cut costs. One method of doing so is by quickly identifying the evidentiary samples which have no probative value.

Here, we propose a “Direct-to-DNA” method, as defined by SWGDAM, as a rapid and high throughput option, for the screening of male DNA in sexual assault kits. This method considers the following elements:

1. No resampling of evidence required;
2. No loss of sample caused by degrading elements in the screening method;
3. No loss of internal positive control results caused by inhibitory elements in the screening method;
4. FASTER, MORE EFFICIENT THAN TRADITIONAL SCREENING;
5. IMPROVED, MORE EFFECTIVE THAN TRADITIONAL SCREENING;
6. Comparability to STR screening results for sensitivity of detection;
7. Compatibility with QIAGEN DNA Investigator kit chemistry.

The concept of implementation for this Y-screen method is to use 10% of the sexual assault sample and screen for detection of male DNA, prior to performing the traditional differential analysis workflow. Those samples that are positive for male DNA as detected in the 10% Y-screen method would enter the traditional workflow, while those samples negative for male DNA would be aborted from further analysis. The value of this method is time and cost savings to the laboratory, while still maintaining sensitive and reliable results for the casework using the latest advancements in technology.

Data to support this method as robust for forensic DNA casework and a reliable screening tool will be presented.