

## **NOVEL Y-SCREEN ASSAY USING THE QUANTIFILER® TRIO DNA QUANTIFICATION KIT**

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Sexual Assault Kit (SAK) samples are among the most difficult sample types encountered by many forensic laboratories. Differential extraction procedures used as part of a sexual assault workflow are both time consuming and labor intensive. For many laboratories, SAKs represent a high percentage of current and backlogged cases and often yield no presence of male DNA, when analyzed downstream by autosomal and Y STR amplification.

To assist in the decision making process of whether to take a sample forward to differential extraction, we have developed a novel DNA screening workflow allowing customers to quickly assess whether swab evidence from an SAK contains a male contributor prior to the standard labor-intensive differential extraction procedures used in forensic laboratories. This Y-screen assay starts with a small cutting of an SAK swab placed into a buffer which lyses cells (including sperm) in only 10 minutes. This is immediately followed by a quick neutralization step and dilution before addition to the Quantifiler® Trio assay. We demonstrate that the sensitivity of the assay correlates well to the results obtained from differential extraction procedures with our studies and STR analysis. We also show the results from five labs using a range of sample types, differential extraction procedures and STR chemistries.

We show that this technique can provide a complementary DNA confirmative assay to complement the current presumptive screening techniques commonly used by forensic laboratories. This Y-screen assay solves important sample screening and processing problems, allowing forensic laboratories to more rapidly process SAK samples and therefore helps to assist in decreasing overall SAK turnaround times and backlogs.

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