

## **EVALUATION OF THE CASEWORK DIRECT KIT FOR EFFICIENT SCREENING OF SEXUAL ASSAULT AND TOUCH DNA SAMPLES**

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Standard extraction methods for forensic samples are often time-consuming and include multiple wash steps which can introduce opportunities for DNA loss. The Casework Direct Kit, Custom provides a simple, fast DNA extraction method without purification steps. The lysate generated from the Casework Direct Kit, Custom is compatible with Promega quantification and amplification systems. Two proposed applications of this extraction method include Y-screening of sexual assault kit samples and extraction of trace DNA samples. In the 2016 SWGDAM document titled *Recommendations for the Efficient DNA Processing of Sexual Assault Evidence Kits*, a quick non-differential extraction technique followed by quantification is recommended to screen for male DNA in place of common serology methods. When the Casework Direct Kit, Custom is used in conjunction with the PowerQuant® System, information related to male DNA quantity, autosomal DNA quantity, degradation, and inhibition are quickly obtained from sexual assault kit samples, thereby predicting the success of STR profile generation. Casework Direct Kit, Custom is also compatible with a variety of casework sample types, including low-template or touch DNA samples. While DNA purification is not required for subsequent STR analysis, the lysate may be purified by extraction using DNA IQ™ chemistry if IPC data in the PowerQuant® System indicates inhibition. We present data evaluating the effectiveness of using Casework Direct Kit, Custom for Y-screening and a variety of casework-type samples.

Key Words: PowerQuant®, PowerPlex®, Y-screening, casework