D53 Promega Maxwell16™: A Simple and Integrated Solution for Small and Medium-Sized Laboratories

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Attendees will learn that additional opportunities exist for forensic laboratory for automated purification of STR-quality genomic DNA. This presentation will demonstrate a personalized instrument for the purification of genomic DNA.

Purification of genomic DNA for short tandem repeat (STR) analysis can be a tedious and time consuming process for any laboratory. Often there is a need to isolate DNA from a variety of sample sources such as whole blood, tissues, cells, and solid supports. As the number of forensic samples necessary for processing continues to climb, it's becoming more important for laboratories to automate this process. A number of automated liquid handling instruments have helped alleviate this bottleneck and streamline the purification process; however the dedicated equipment used in automated DNA isolation systems is typically expensive, highly specialized, and inflexible.

Promega has developed the Maxwell16™ System to provide maximum performance and flexibility in a simple, integrated reagent/instrument format. The Maxwell16™ instrument has been designed as a simple and robust purification platform with minimal training or maintenance and little setup time. The instrument occupies minimal laboratory bench space. The Maxwell16™ reagent cartridges come pre-filled with a variety of Promega reagent kits specified for optimal purification performance specific to sample type. The DNA IQ™ System reagent kit has been demonstrated for optimized isolation of genomic DNA from a wide variety of sample sources.

The Maxwell™ 16 system is designed to purify samples using Promega's DNA IQ™ Resin. The DNA IQ™ Resin is designed to optimize efficient purification product capture, washing, and elution. The Maxwell™ 16 instrument is a magnetic particle handling instrument that efficiently pre-processes liquid and solid samples, transports the magnetic DNA IQ™ Resin through purification reagents contained within the pre-filled cartridges, and mixes efficiently during processing. The efficient magnetic particle processing by the Maxwell™ 16 instrument avoids common automated purification headaches such as clogged tips, or partial reagent transfers that result in sub-optimal purification processing by other common automated purification instrument platforms. The system can process up to 16 samples in a single run. Purified concentrated products are high quality and ready for use in a variety of downstream applications, including STR analysis.

The authors will demonstrate the performance of Maxwell16™ System for the isolation of gDNA from a wide variety of tissue samples, blood, buccal swabs, and other forensic samples with yield, quality, cross-contamination, and STR profiles.

Genomic DNA, Short Tandem Repeat, Integrated

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