



B140 Utility of Quantifiler™ Y in Resolving Difficult Forensic Cases

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The goal of this presentation is to demonstrate to the forensic community the usefulness of Quantifiler™ Y in forensic casework.

This presentation will impact the forensic community and/or humanity by demonstrating the usefulness of Quantifiler™ Y in forensic casework.

Quantitation of human male DNA and obtaining interpretable male profile are major obstacles during the analysis of a mixture sample containing male and female DNA. Availability of Quantifiler™ Y for quantitation of human male DNA and Y-STR multiplex systems for amplification of short tandem repeat loci on the Y-chromosome (Y-STRs) enables one to overcome these obstacles. It is possible to quantitate male DNA and obtain an exclusive profile of male DNA in a sample containing mixtures of male and female DNA using Quantifiler™ Y and Y-STR multiplex systems, respectively. Scientific Working Group on DNA Analysis Methods (SWGDM) has identified a set of eleven loci namely DYS19, DYS385a/b, DYS389I, DYS389II, DYS390, DYS391, DYS392, DYS393, DYS438, and DYS439 for forensic analysis.

Quantifiler™ Y human male DNA quantitation kit was validated for forensic DNA analysis using the 7500 Sequence Detection System. Analysis for Y-STRs was performed using the Y-PLEX™ 12 system. A combination of Quantifiler™ Y and Y-PLEX™ 12 was used to obtain male profiles in the analysis of 10 forensic cases. Sensitivity of the Quantifiler™ Y on the 7500 Sequence Detection System in the laboratory was 44.5 pg of human male DNA. Quantitation of male DNA by Quantifiler™ Y is based on real time PCR and hence provides scalable information about the quantifiable human male DNA. This approach enables one to obtain male profile from evidence samples. Of the 15 cases investigated, 4 evidence samples provided complete profiles, 2 evidence samples provided partial profiles, and 4 evidence samples provided inconclusive results. Data and strategies used for amplification of evidence samples from these difficult forensic cases will be presented.

Quantifiler™ Y, Y-PLEX 12, Forensic Casework