



B22 Development of a Y-STR Megaplex and Its Comparison to A Y-STR 10-Plex

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After attending this presentation, attendees learn about new Y-STR multiplexes that are being developed for use in forensic and paternity laboratories.

This presentation will demonstrate that Y-STRs are being used increasingly more in forensic and paternity laboratories. The Y-STR multiplexes being developed at Orchid are able to quite effectively discriminate among male lineages, and thus, will have a significant impact in the field of human identification.

Y-chromosome STRs (Y-STRs) have gained interest in the forensic community because of their ability to identify the male component of a sample. Y-STR testing is especially valuable in sexual assault cases in which little male DNA is present, as well as in deficient paternity, immigration, and estate cases. Orchid Cellmark has developed a megaplex for use on the ABI PRISM® 3100 Genetic Analyzer that examines many Y-STR markers in a single amplification reaction. The Y-STR megaplex includes all of the European minimal haplotype and U.S. Y-STR haplotype loci, as well as additional, highly discriminating loci. The results of studies aimed at optimizing the amplification and analysis conditions for this multiplex will be presented. Validation studies demonstrating the effectiveness of the Y-STR megaplex as a forensics tool will also be discussed. In addition, Orchid Cellmark has optimized a Y-STR 10-plex which has amplicons less than 200 base pairs in length, making it an ideal system to use with degraded samples containing male DNA. The present study compares the Y-STR 10-plex and Y-STR megaplex to determine their ability to effectively discriminate among male lineages.

Y-STR, Forensic, Multiplex