

THE USE OF X-STR LOCI IN DIFFICULT RELATIONSHIP TESTS

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Multiplex PCR of short tandem repeats (STRs) is the most commonly used technology in parentage and relationship testing. The vast majority of relationship cases can be resolved using standard commercially available systems such as the multi-locus PowerPlex 16 (Promega) or Identifiler (ABI) STR amplification kits.

When results of testing remain ambiguous due to, for example, a low relationship index or genetic inconsistency, additional panels of STRs are employed to improve resolution. Most of the commonly used additional loci are autosomal, but in many instances, non-autosomal markers such as those found in the PowerPlex Y (Promega) or Yfiler (ABI) kits are particularly useful for the resolution of difficult cases. Similarly, there is a subset of relationship scenarios where examination of the X chromosome would be particularly helpful.

We have evaluated a commercially available kit (BioType AG) consisting of 8 X STR loci in 4 linkage groups. Here we present examples where examination of X STRs has proven useful in resolving some difficult relationship cases.