X-CHROMOSOME STR MULTIPLEX CONSTRUCTION, AND ALLELE FREQUENCIES IN AN AUSTRALIAN CAUCASIAN POPULATION

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X-chromosome STR loci can prove very useful in the analysis of disputed paternity cases where the child is a female. They also find use in other cases to determine whether there is sharing by descent of an X-chromosome. Examples include the determination of half sibship of two females or verification of a grandparent and grandchild relationship.

Six X-chromosome specific STR loci, together with the sex-determination locus Amelogenin, have been multiplexed in our laboratory using three different fluorescent dyes. The loci-GATA172D05, DXS101, HPRTB, STRX1 (all FAM-labelled), AR (TET-labeled), and DXS2390 and Amelogenin (HEX-labelled)-were multiplexed and the PCR amplification products run with the internal size marker Tamra 500 and analyzed on an ABI PRISM® 377 DNA Sequencer (using Filter C).

Approximately 200 unrelated individuals were used to calculate allele frequencies for the above-mentioned X-STR loci.

The use of an X-STR multiplex in conjunction with autosomal STR loci can prove more powerful in resolving paternity and kinship cases, than using autosomal STR loci alone.