

Allele Frequencies of Three STR Loci: CSF1PO, TPOX, and HUM1H01 in a Dubaian Arab Population

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A class of highly polymorphic loci in the human genome are the short tandem repeat (STR) loci. STR loci are composed of tandemly repeated sequences of 2-7 base pairs in length, are small in size, generally less than 350 base pairs. Thus, STR loci generally are amenable to amplification by the polymerase chain reaction (PCR). The typing of STR loci has been facilitated by the ability to amplify two or more STR loci simultaneously in one PCR by a procedure known as multiplex PCR. The advantages of a multiplex system are that less sample DNA is consumed than when analyzing each locus independently, less reagents are required, and the time needed to perform studies on several loci is greatly reduced.

DNA was extracted organically from blood samples of 101 unrelated individuals who are UAE nationals living in Dubai City. The *GenePrint*[®] System Kit (Promega Corporation) was used to carry out multiplex PCR of three tetranucleotide STR loci: TH01, TPOX, and CSF1PO. PCR was carried out in a GeneAmp PCR System 9600 following recommendations of Budowle, *et al.* (J For Sci 42; 701-707, 1997). After PCR, amplicons were separated by polyacrylamide gel electrophoresis and detected by silver staining).

Allele and genotype frequencies were calculated. Using the exact test for Hardy-Weinberg equilibrium expectations the loci CSF1PO and TH01 show departures ($p=0.042$ and 0.006 , respectively). The CSF1PO locus is marginal, but TH01 is highly significant. However, the same samples were also analyzed for LDLR, GYPA, HBG, D7S8, Gc, HLADQA1 and D1S80 loci (Alkhatat, *et al.* Forens. Sci Int. 81; 29-34, 1996). Thus, after correction for the number of loci analyzed (10 loci), the observations were no longer significant. There was no evidence for linkage disequilibrium between the STR loci.

The allele data for the loci CSF1PO and TH01 were compared (using RXC contingency table test) with another Arab Population study (Bayoumi, *et al.*, Electrophoresis 18; 1637-1640, 1997) and found to be statistically similar between the two databases ($p=0.396$ and $p=0.080$, respectively).

In conclusion, a population database for Dubaian Arabs has been established for the STR loci CSF1PO, TPOX, and TH01. The data can be used for both forensic human identity and paternity testing.