Cloning and Characterization of a Polymorphic Human DNA Sequence for Forensic Identification

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The tremendous advances in molecular biology in the recent years have led to its application in various fields. These modern molecular genetic tools has found its utilization in crime investigation and has revolutionized the forensic arena. The current estimates indicate that there may be at least 400 million hypervariable loci throughout the human genome which could provide sufficient DNA probes to serve as informative markers.

Most hypervariable loci consist of tandemly repeating DNA sequences. These loci have a large number of alleles with high heterozygous values. We have isolated and cloned a human DNA sequence of 600bp (named as Hps2) which is highly polymorphic and individual specific. These characteristics make it highly useful in forensic identification. Complete sequencing of this probe has been completed. A population data base of over a 100 random individuals of Hyderabad City, Andhra Pradesh, India, has been carried out for estimating the allele frequency. The high heterozygosity values of 96% makes it a very viable probe in terms of forensic identification.