

Impact of Chimerism on Y-STR DNA Determination: Sex Mismatch Analysis

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Abstract : DNA fingerprinting analysis aids in personal identification for forensic purposes and has always been a driving motivation for law enforcement agencies in almost all countries since its inception. The introduction of DNA markers (Y-STR) has allowed for greater precision and higher discriminatory power in forensic testing. A criminal/ person committing crime after bone marrow transplantation is a rare situation but not an impossible one. Keeping such a situation in mind, a study was carried out to find out the best biological sample to be used for personal identification, especially in forensic situation. We choose a female patient (recipient) and a male donor. The pre transplant sample (blood) and post transplant samples (blood, buccal swab, hair roots) were collected from the recipient (patient). The same were compared with the blood sample of the donor using DNA FP technique. Post transplant samples were collected at different interval of time (15, 30, 60, and 90 days). The study was carried out using Y-STR kit at 23 loci. The results determined discusses the phenomenon of chimerism and its impact on Y-STR. Hair sample was found the most suitable sample which had no donor DNA profiling up to 90 days.

Keywords : bone marrow transplantation, chimerism, DNA profiling, Y-STR

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