

STR Loci and Reverse Dot-Blot Analysis in Human Identification

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DNA polymorphism is a powerful tool for human identification. In our laboratory, we have used HLA-DQA1, Polymarker (PM) and STR loci in identification cases, which we routinely analyse for paternity investigation. Eight identification cases have been studied, including one foetus and three new-born cases. The biological material studied include bones, teeth, muscle, liver and bone structures, depending on the case being investigated.

DNA was extracted by phenol/chloroform method. DNA from teeth was extracted by the Chelex method. HLA-DQA1 and PM were analysed by reverse dot-blot. HUMTH01, HUMFES/FPS, HUMVWA31A, HUMF13A1, HUMFIBRA/FGA, D12S391, D18S51 and D19S253 amplified products were analysed using an ALF DNA sequencer. Maternity and paternity investigations were performed for identification purposes. In two cases, brothers were available and in one case a son was studied. Maternity probability was higher than 98% and paternity probability values were higher than 99.8%. Three exclusions were obtained in the new-born cases. Another human identification case was intended to sex determination and to study the probable ethnic group from skeletal remains.

In four other cases, we were not able to obtain any results, probably due to DNA degradation or inhibition. However, the investigated polymorphic systems were useful for forensic DNA typing in human identification.