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**MITOCHONDRIAL DNA POLYMORPHISMS IN 312 INDIVIDUALS OF CROATIAN POPULATION DETERMINED BY 105 PROBE PANEL TARGETING 61 HYPERVARIABLE AND CODING REGION SITES**

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Aim was to detect mitochondrial DNA (mtDNA) sequence variation in 312 Croatian individuals by the use of multiplex polymerase chain reaction (PCR) amplification of informative sites of genome and subsequent hybridization to a linear array of 105 immobilized probes targeting 61 hypervariable and coding region sites. 5-plex (amplicons from 314 bp to 444 bp) and 10-plex (amplicons from 102 bp to 183 bp) PCR amplification of the mtDNA hypervariable regions I and II (HVI and HVII), coding region (CR) and variable regions I and II (VRI and VRII) was used. Subsequent linear array typing targeted 25 HV sites, 25 CR sites and 11 VR sites within the human mtDNA genome. mtDNA types (mitotypes) of 312 randomly selected Croatian individuals was determined. One hundred ninety seven different mitotypes were observed (145 unique). Most frequent mitotype occurred 10 times; all other mitotypes occurred 13% or less. The corresponding genetic diversity value for this database was 0.9940. Mitochondrial DNA typing with an array of immobilized 105 probes is a powerful identification tool which can be benefit to forensic DNA analysis of mass disaster remains and identity testing of single and mass graves, as well as for criminal casework testing.

**Keywords:** mitochondrial DNA, polymorphisms, linear array, oligonucleotide probe panel, Croatian population