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Molecular methods are now common practice for HLA typing and have replaced traditional serological methods in many histocompatibility laboratories around the world. HLA-Cw typing by standard serological techniques is associated with a high frequency of blanks and rarity of reliable typing reagents for several of the Cw specificities. The objective of this study is to develop a DNA based-typing method to detect HLA-C alleles by using sequence-specific primers (PCR-SSP) or "Phototyping" which is referred to by Bunce et al. (25-26). This thesis, 172 genomic DNA samples were typed and analyzed HLA-C alleles by using 43 SSP reaction mixtures for HLA-C alleles identification. The results of this study showed that the identification of HLA-C allele by this method could be more precise and accurate than those of the serologically defined HLA-C antigen (Cw1-Cw10). SSP was also possible to identify the so-called blank antigen by serology. These results were confirmed with HLA-C typing by PCR-SSOP method and compared with previously known HLA-Cw by serology and defining corresponding allele frequencies of these HLA-C alleles. The relative allele frequencies showed that Cw*0801 were the most frequently detected alleles, followed by Cw*0702.

However, those alleles known to show differences outside exon 2 and 3 need further development. Because HLA-C alleles that show difference outside exon 2 and 3 (that is exons 1, 4 and 5) could not be identified in this study. Phototyping of HLA-C that was developed and performed in this study has the advantages of a being simple and quick method that does not require any special equipment or reagents while producing well defined results and therefore suitable for routine DNA typing and for clinical transplantation. This method could be beneficial for investigation of HLA-Cw matching in allogenic solid organ and bone marrow transplantation.