RESOLUTION OF Y HAPLOTYPES USING THE LIFE TECHNOLOGIES Yfiler® PLUS VTS PCR AMPLIFICATION KIT

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The Yfiler Plus VTS Kit is a short tandem repeat (STR) assay that amplifies 27 Loci using 6 Dye Chemistry for the electrophoretic separation of the amplification products. Included in this panel are 6 rapidly mutating markers. This combination of markers should markedly improve the resolution of Y-Haplotyped chromosomes. The aim of our study was to test this on samples of non-related individuals which had previously been typed with other systems and found to have the same Y haplotype.

Our group participated in the International study, coordinated by Professor Lutz Roewer in Charité, Berlin, utilizing the Power Plex Y23 kit in 2013. To this end blood samples were obtained, after informed consent, from 639 male blood donors. The selection criteria were that they were of Swiss descent from two generations. The samples were anonymized from the blood donor center and the only information received was the nationalities of the respective father and grandfather.

The samples were typed with the Power Plex Y23 system along with Autosomal STRs using the PowerPlex 21 and NGM SElect PCR Amplification Kits.

From this collective, 78 Persons were typed with concordant Y-Haplotypes in 35 Groups. That is 35 Y-Haplotypes were observed to be shared by more than one person. 30 haplotypes were shared by groups each of two persons, 2 haplotypes were shared by groups of three persons and three haplotypes were shared by groups of four individuals.

Each group of two persons and pairwise combinations of the groups with multiple individuals were tested for their relationship status with the Autosomal STRs using the PatCan 2 software. 17 Groups were found to be related as father / son pairs or brothers and 18 groups were found to have Likelihood Ratios of less than one for a relationship of first cousins or nearer.

We will present the results of our analyses of these groups using the Yfiler Plus set of markers and test their efficacy in resolving these Y haplotypes.