

A POPULATION STUDY WITH NOVEL AND COMMON Y-CHROMOSOME STRs

Al B. Agellon, Veronica A. Kearney, Alan J. Redd, Tatiana Karafet, and Michael F. Hammer
Genomic Analysis and Technology Core Facility, University of Arizona, Tuscon, AZ



Short-Tandem-Repeat (STR) loci and electronic databases of DNA profiles are powerful tools to help forensic scientists identify or exclude suspects. STRs on the Y chromosome will be useful for paternity testing and sexual assault cases that involve a mixture of male and female bodily fluids. Populatio databases of Y-haplotypes have the potential to provide information about ethnicity and about near-unique Y-DNA profiles. In this study populations were genotyped for novel and commonly used Y-STRs. Our population samples include: Native Americans, African-Americans, European-Americans, Asian-Americans, and Hispanic Americans. We focused on the following 13 novel Y-STR markers: DYS446, DYS447, DYS448, DYS449, DYS450, DYS452, DYS453, DYS454, DYD455, DYS456, DYS457, DYS458, and DYS459. In addition, we compared population data from the new loci to data from the core set of seven forensic Y-STRs (DYS19, DYS385, DYS388, DYS389, DYS390, DYS391, and DYS393). We will estimate population diversity, genetic structure, and the discrimination capacity of the best combination of Y-STRs. These population data will be useful for future comparative Y databases.