

U.S. POPULATION STRUCTURE AND ADMIXTURE: Y-CHROMOSOME DATA.

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To quantify U.S. population structure and admixture using Y-chromosome data, we built a population database of 965 individuals that were typed for 26 short-tandem-repeats (STRs) and 50 single-nucleotide-polymorphisms (SNPs). The 12 population samples were obtained from three states (Arizona, South Dakota, and Virginia) and can be categorized into the following four ethnic groups: European-Americans, Hispanics, African-Americans, and Native-Americans (Navajo, Apache, and Sioux). Multidimensional scaling plots of the Y-STR or Y-SNP data contained four clusters of populations, one for each of the ethnic groups; however, the Sioux were found near the European-American cluster. Y-SNP data indicated that the Sioux had 53% European admixture, thus the Sioux were removed from the remaining analyses. European admixture/ancestry in African-Americans, Native-Americans, and Hispanics ranged from 25-35%, 0-5%, and 61-73%, respectively. Native-American admixture/ancestry in European-Americans, African-Americans, and Hispanics ranged from 1-3%, 0.0%, and 12-19%, respectively. An analysis of molecular variance found insignificant genetic structure between populations within the same ethnic group, but significant genetic structure among ethnic groups. In general, these data and these analyses support the creation of Y-chromosome databases that are ethnic group specific.