WORLDWIDE DISTRIBUTION OF D1S80 POLYMORPHISM. COMPARISON OF GENETIC DISTANCES AND CLUSTER ANALYSIS

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INTRODUCTION

Some studies have tried to compare the homogeneity of D1S80 frequencies in populations of various origins. However, as far as we know, only conventional approaches with a small set of populations have been tested.

In this study we compare through a multivariate analysis a set of 48 populations which comprise of wide sample of the populations of the world.

MATERIALS AND METHODS

A data matrix was constructed with as many populations as possible and then procesed with the statistical package SPSS/PC+ for microcomputers.

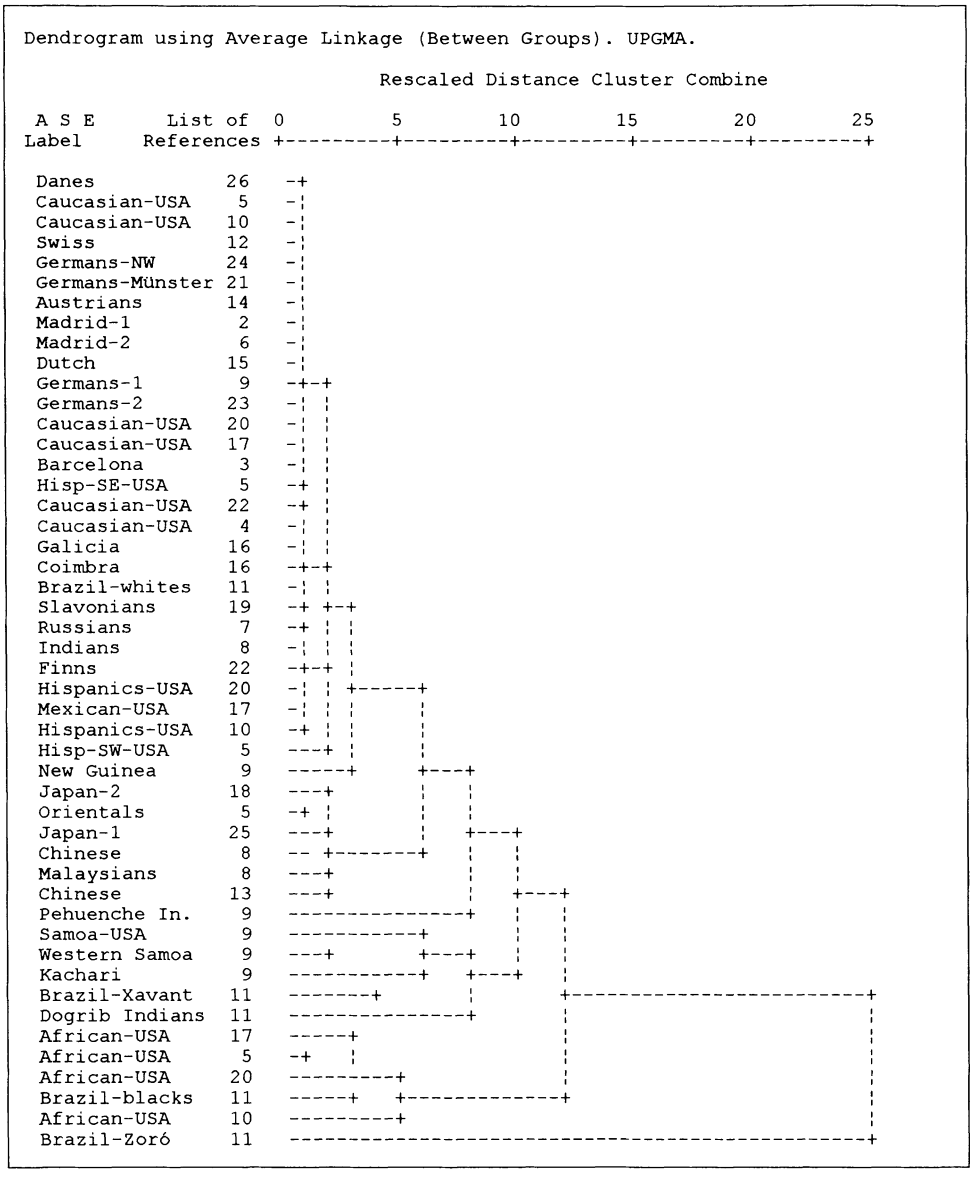
The genetic disimilarity matrix (distance matrix) was calculated according to cosine transformation. This algorithm is similar to that of Cavalli-Sforza and Edwards (1967). The distance matrix was clustered with the UPGMA algorithm to obtain the final dendrogram.

RESULTS AND DISCUSSION

Several main clusters can be observed within the dendrogram (See dendrogram below). A big cluster comprising most of the caucasian populations plus a sample of US-Hispanics can be clearly differentiated from the rest. Another caucasian cluster contains two samples of US-caucasians plus portuguese and Galician samples. The oriental samples have clustered together and appear well apart from the caucasians cluster and a small cluster, which comprises all the populations of black african background, is situated at some distance from the former clusters.

Between caucasian and oriental clusters, a small group of Hispanic and caucasian populations (Russians, Finns and Indians) can be noticed.

However, some populations can not clearly classified within any of these clusters. A sample of papuans from New Guinea highlands clusters in intermediate positions between the former caucasian-Hispanic and oriental groups. Also, Pehuenche indians from central Chile remains between oriental populations and a set of heterogeneous populations from Birmania (Kachari) and Polynesia. The sample of Zoró indians from Brazil is separated from the rest of the clusters, probably due to some kind of genetic isolation.



In conclusion, a three major racial group model - caucasian, negroid and mongoloid - seems to be elucidated from the dendrogram, despite south-east asian and polynesian samples cluster separately. In general, the results show quite clearly that D1S80 genetic system is variable worldwide and a useful tool to diferentiate populations.

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