D1S80 alleles in the Wielkopolska (Poland) population

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METHODS

Samples of venous blood were taken on EDTA from unrelated blood donors. DNA was extracted using phenol-chlorophorm technique.DNA content was estimated by agarose gel electrophoresis by comparison with DNA standard and adjusted to 1 ng/µl using bidestilled water. Amplification (Rand et al 1992) of the D1S80 locus was carried out using 1-2 ng template and the primers described by Budowle et al (1991). Temperature profile: denaturation 95°C, 60 s, extension 72°C, 240 s, annealing 55°C, 60 s, 27 cycles in Triothermoblock (Biometra). Separation of the fragments was accomplished using discontinuous gel electrophoresis (Allen et al 1989). The amplified alleles were visualised by silver staining. The allelic ladder consisted of 20 alleles and was run every third electrophoretic lane. The obtained allele frequencies were compared with those for other populations, obtained using a similar technique (Skowasch et al 1992, Deka et al 1994, Kloosterman et al 1993, Ścicka-Śliwka et al 1994, Nu En Huang et al 1994, Huber and Holz 1994, Martinez-Jaretta et al 1994, Pawłowski 1995). In the cases where the results were published in the graph form, counts of alleles of individual types were calculated on the basis of allele frequencies and the total numbers of analysed alleles. The allele counts were analysed by the correspondence analysis (Greenacre 1984) and by the hierarchical grouping of populations using the method of group averages, on the basis of the Bhattacharyya distances among populations (Nardia, Kent and Bibby,1979). Hardy-Weinberg equilibrium in the examined Wielkopolska population was tested using the allele grouping method (Skowasch et al 1992).

RESULTS

A total of 348 individuals were examined. Like in other populations in Europe the alleles 18 and 24 were most frequent. The allele frequency distribution conformed with expectations of Hardy-Weinberg equilibrium. Almost 7% alleles involved cathodic or anodic variants of the standards included in the allelic ladder and the off-ladder variants-similarly to results of Skowasch et al (1992) and those of Kloosterman et al (1993) - were particular-

ly frequent beyond the two main allelic peaks. Out of 696 alleles, 79.6% were observed in heterozygous combination. While distribution of D1S80 alleles was remarkably similar in populations of Europe, differences were noted between distant populations. In correspondence analysis Dogrib Indians and Kachari populations proved clearly distinct from two groups of populations, one including European populations and the other:China, Pehuenche Indians and Samoans. The amount of information about variability of populations represented in the pattern obtained in the coordinate system of first principal axes was equal to 34.40 + 23.08 =57.48% of total variability. Hierarchical grouping distinguished three groups of populations: European populations, China+Pehuenche Indian populations and Samoan populations.

Allele	Frequency	No of alleles
17	0.14%	1
18	21.84%	152
19 n	0.29%	2
20	1.29%	9
21	1.01%	7
22	4.45%	31
23	1.15%	8
24	36.78%	256
25	7.90%	55
26	2.30%	16
27	0.43%	3
28	5.46%	38
29	3.88%	27
30	0.86%	6
31	7.90%	55
32	0.14%	1
33	0.43%	3
35	0.15%	1
36	1.15%	8
37	1.87%	13
41	0.43%	3
41	0.14%	1

DISCUSSION

D1S80 allele frequency distribution in Wielkopolska, Poland has been found to resemble respective distributions in other European populations but to differ from those for geographically more distant populations.

Origin of data: D1S80 allele frequency distributions for Highlanders, New Guinea, Pehguenche Indians, Chile, Dogrib Indians, Canada, American and Western Samoas, Kacharis of North-East India and German Caucasians originate from Deka et al (1994), for population of China ffom Nu En Huang et al (1994), on population from Asturia from Martinez-Jareta et al (1994), for population of Holland from Kloosterman et al (1993), on samples of German population from Bonn from Huber and Holtz (1994) and of Münster from Skowasch et al (1992) on samples of Polish populations in Gdansk from Pawłowski (1995) and in Bydgoszcz from Mościcka-Śliwka (1994).

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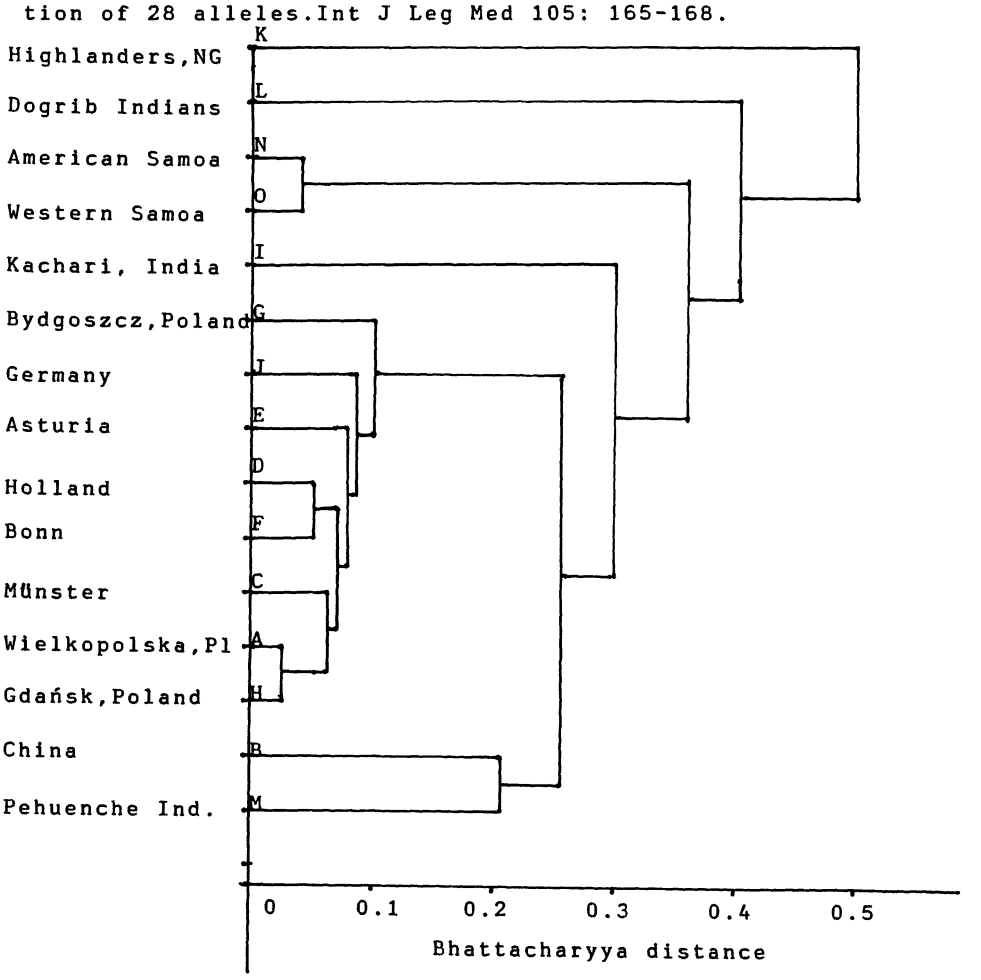

Result of hierarchical groupping of populations using the method of group averages.