BRIEF COMMUNICATION

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The Distribution of D1S80 (pMCT118) Alleles in a Southern Italian Population Sample

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ABSTRACT: A population study on the distribution of alleles for the D1S80 locus (pMCT118) was carried out on 141 unrelated and healthy blood donors from the province of Messina (Eastern Sicily). Forty-two different genotypes and 16 different alleles were observed and two of these were found to be relatively common in the sample. Hardy-Weinberg equilibrium was tested using a preliminary simple chi-square method by binning in five groups and an exact test. The results demonstrated that the population was in HWE for both tests. A comparison of our data with other population studies showed that the distributions of alleles were similiar.

KEYWORDS: forensic science, DNA typing, population genetics, D1S80, Messina, Sicily, Italy

The distribution of alleles for the D1S80 locus (pMCT118) (1) was determined in 141 unrelated and healthy blood donors from the province of Messina (Eastern Sicily). DNA was extracted following standard phenol-chloroform and Chelex 100 methods (2,3) and amplification performed by the polymerase chain reaction (PCR) on a thermal cycler (Perkin Elmer model 480) according to the manufacturer's recommendations using the AmpliFLP D1S80 PCR Amplification Kit (Perkin Elmer, Norwalk, CT, N808-0054). PCR products were vertically electrophoresed on an ultra-thin (0.1 to 0.2 mm) layer of polyacrylamide ''native'' gels and revealed by silver staining (4). Hardy-Weinberg equilibrium was tested using a preliminary simple chi-square method by binning observed (and expected) in five groups (5,6) and an exact test (7).

Results and Discussions

Forty-two different genotypes and 16 different alleles (Table 1) were observed and two of these (18 and 24) were found to be relatively common in the sample. The statistical results (Table 2) demonstrated that the population was in Hardy-Weinberg equilibrium for both tests. A comparison of our data with those of other population studies (Table 3) showed that the distributions of alleles were similiar.

TABLE 1—*Different genotypes and alleles.*

Allele	Frequency	Genotype	Observed	Frequency
18	0.223	18	12	0.085
19	0.007	18–20	1	0.007
20	0.010	18–21	4	0.028
21	0.056	18–22	7	0.049
22	0.070	18–24	17	0.120
23	0.010	18–25	1	0.007
24	0.368	18–27	1	0.007
25	0.028	18–29	7	0.049
26	0.010	18–33	1	0.007
27	0.014	19–21	1	0.007
28	0.049	19–24	1	0.007
29	0.085	20–24	1	0.007
30	0.028	20–28	1	0.007
31	0.021	21	1	0.007
33	0.007	21–22	1	0.007
34	0.007	21–24	5	0.035
. . .	. . .	21–29	2	0.014
. . .	. . .	21–31	1	0.007
. . .	. . .	22	1	0.007
. . .	. . .	22–24	5	0.035
. . .	. . .	22–25	1	0.007
. . .	. . .	22–28	2	0.014
. . .	. . .	22–29	2	0.014
. . .	. . .	23–24	2	0.014
. . .	. . .	23–30	1	0.007
. . .	. . .	24	20	0.141
. . .	. . .	24–25	4	0.028
. . .	. . .	24–26	3	0.021
. . .	. . .	24–27	1	0.007
. . .	. . .	24–28	9	0.063
. . .	. . .	24–29	6	0.042
. . .	. . .	24–30	5	0.035
. . .	. . .	24–31	4	0.028
. . .	. . .	24–33	1	0.007
. . .	. . .	25–27	1	0.007
. . .	. . .	25–29	1	0.007
. . .	. . .	27–29	1	0.007
. . .	. . .	28–30	1	0.007
. . .	. . .	28–31	1	0.007
. . .	. . .	29	1	0.007
. . .	. . .	29–30	. . .	0.007
. . .	. . .	29–34	1	0.014

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TABLE 2—*Statistical Results.*

Groups	Alleles
I	18
II	19–23
III	24
IV	25–28
V	29–34
χ^2	10.93
$P(df = 10)$	0.5–0.3
Exact test P	0.389

TABLE 3—*Comparison of data.*

	Messina $n = 141$	Italy (8) $n = 1720$	Spain (9) $n = 120$	Germany (10) $n = 250$	Poland (11) $n = 208$	Austria (12) $n = 104$
16	. . .	0.002	. . .	0.006	0.004	. . .
17	. . .	0.001	. . .	. . .	. . .	. . .
18	0.223	0.204	0.229	0.198	0.266	0.269
19	0.007	0.003	. . .	0.002	0.002	0.009
20	0.010	0.021	0.008	0.028	0.009	0.028
21	0.056	0.026	0.004	0.032	0.021	0.019
22	0.070	0.055	0.054	0.050	0.036	0.028
23	0.010	0.014	0.012	0.018	. . .	0.009
24	0.368	0.378	0.408	0.346	0.300	0.360
25	0.028	0.042	0.037	0.044	0.069	0.067
26	0.010	0.019	0.016	0.030	0.028	0.004
27	0.014	0.013	0.012	0.006	0.002	0.004
28	0.049	0.053	0.070	0.060	0.062	0.052
29	0.085	0.064	0.050	0.058	0.045	0.019
30	0.028	0.015	0.020	0.001	0.016	0.009
31	0.021	0.047	0.041	0.058	0.098	0.076
32	. . .	0.008	. . .	0.012	0.004	0.004
33	0.007	0.002	. . .	0.004	0.004	. . .
34	0.007	0.004	0.008	0.008	. . .	0.004
35	. . .	0.001	. . .	. . .	. . .	. . .
36	. . .	0.004	0.004	0.001	0.002	0.004
37	. . .	0.006	0.008	0.016	0.019	0.014
38	. . .	0.002	0.012	. . .	. . .	. . .
39	. . .	. . .	. . .	. . .	0.002	
40	. . .	0.002	. . .	0.004	. . .	. . .
>41	. . .	0.001	. . .	. . .	. . .	0.009

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