

FOR THE RECORD

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Spanish Population Data on Nine STR Loci

POPULATION: Spanish

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Blood samples were obtained by venipuncture from unrelated volunteer Spanish individuals ($n = 401$) residing all over Spain. DNA was extracted using phenol:chloroform and Microcon-100 filtration (1).

Typing: 1 to 2 ng were amplified using the Profiler-Plus kit, according to manufacturer's recommendations. The amplified products were separated by capillary electrophoresis using the ABI Prism 310 (PE Biosystems, Foster City, CA). Alleles were desig-

nated by comparison with the allelic ladders included in the kits and based on the number of repeat units.

Statistical analysis: The frequency of each allele for each locus was calculated from the numbers of each genotype in the sample set (i.e., the gene count method). Population statistics data were calculated as described in former papers (1 to 3).

The nine loci have a power of discrimination of 0.99999999, and the combined probability of exclusion is 0.99989. The dataset can be accessed at <http://www.gitad.org>

References

1. Budowle B, Moretti TR, Baumstark AL, Defenbaugh DA, Keys KM. Population data on the thirteen CODIS core short tandem loci in African Americans, U.S. Caucasians, Hispanics, Bahamians, Jamaicans and Trinidadians. *J Forensic Sci* 1999;44:1277–86.
2. Chakraborty R, Fornage M, Guegue R, Boerwinkle E. Population genetics of hypervariable loci: analysis of PCR based VNTR polymorphism within a population. In: Burke T, Dolf G, Jeffreys AJ, Wolff R, editors. *DNA fingerprinting: approaches and applications*, Birkhauser Verlag, Berlin. 1991;127–43.
3. Guo SW, Thompson EA. Performing the exact test of Hardy Weinberg proportion for multiple alleles. *Biometrics* 1992;48:361–72.

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TABLE 1—Observed allele frequencies for nine STR loci in a sample population (n = 401) from Spain.

	D13S317	D18S51	D21S11	D3S1358	D5S818	D7S820	D8S1179	FGA	vWA
5
6
7	0.017	...	...	...
8	0.152	...	...	...	0.009	0.137	0.012	...	...
9	0.057	...	...	...	0.042	0.115	0.007	...	...
9.3
10	0.039	0.006	...	...	0.075	0.332	0.086	...	...
11	0.315	0.017	...	...	0.350	0.203	0.099	...	...
12	0.277	0.133	...	0.004	0.342	0.163	0.115	...	...
13	0.106	0.155	...	0.004	0.170	0.027	0.287	...	0.002
14	0.052	0.161	...	0.125	0.012	0.005	0.219	...	0.099
15	0.001	0.142	...	0.229	...	...	0.130	...	0.121
16	...	0.141	...	0.247	...	...	0.041	...	0.248
17	...	0.118	...	0.188	...	...	0.004	0.006	0.244
18	...	0.055	...	0.187	...	...	...	0.011	0.204
18.2
19	...	0.030	...	0.015	...	...	...	0.059	0.072
19.2
20	...	0.021	...	0.001	...	...	...	0.138	0.009
20.2	0.001	...
21	...	0.011	...	...	...	...	...	0.198	...
21.2	0.002	...
22	...	0.006	...	...	...	...	...	0.163	...
22.2	0.009	...
23	...	0.002	...	...	...	...	...	0.137	...
23.2
24	0.141	...
24.2	0.001	...	...	...	...	...	...
25	0.090	...
26	0.031	...
27	0.010	...	...	...	...	0.007	...
28	0.137	...	...	...	...	0.002	...
29	0.228	...	...	...	...	...	...
29.2	0.001	...	...	...	...	...	...
30	0.248	...	...	...	...	0.001	...
30.2	0.031	...	...	...	...	...	...
31	0.059	...	...	...	...	0.001	...
31.2	0.092	...	...	...	...	...	...
32	0.012	...	...	...	...	...	...
32.2	0.126	...	...	...	...	...	...
33
33.2	0.046	...	...	...	...	...	...
34.2	0.006	...	...	...	...	...	...
35	0.001	...	...	...	...	...	...

TABLE 2—Observed and expected (unbiased) homozygosities, HWE-Homozygosity test and Exact test for nine STR loci in a sample population from Spain.

	D13S317	D18S51	D21S11	D3S1358	D5S818	D7S820	D8S1179	FGA	vWA
Obs. Hom.	0.224	0.130	0.175	0.197	0.319	0.187	0.155	0.132	0.162
Exp. Hom.	0.217	0.125	0.163	0.199	0.275	0.210	0.178	0.136	0.192
Hom. Test (<i>p</i>)	0.720	0.798	0.516	0.928	0.047	0.258	0.214	0.845	0.131
Exact test (<i>p</i>)	0.287	0.370	0.732	0.945	0.314	0.079	0.103	0.286	0.693
P.D.	0.921	0.969	0.953	0.929	0.880	0.923	0.944	0.965	0.931
P.E.	0.583	0.743	0.678	0.600	0.486	0.592	0.649	0.724	0.618