

FOR THE RECORD

Ilknur Yavuz,¹ M.Sc. and Aysegul Topal Sarikaya,² Ph.D.

Turkish Population Data for 15 STR Loci by Multiplex PCR

POPULATION: 500 unrelated individuals from Turkey.

KEYWORDS: forensic science, DNA typing, short tandem repeats, population genetics, Turkey, D3S1358, vWA, D16S539, D2S1338, D8S1179, D21S11, D18S51, D19S433, THO1, FGA, TPOX, CSF1PO, D5S818, D13S317, D7S820

Blood samples from 500 unrelated individuals residing in Turkey were collected. DNA was extracted from liquid blood by Chelex[®] 100 method (1). The Perkin Elmer Quantiblot kit (D17Z1 probe) was used to quantify the extracted DNA according to manufacturer's instructions (2). One to 2ng of template DNA was used in each PCR. PCR multiplex amplification was performed using the AmpFISTR Profiler and AmpFISTR SGM Plus kits following the manufacturer's protocol (3,4). The amplifications were carried out in Perkin Elmer 9700 thermal cycler. Electrophoresis was carried out in an ABI PRISM 310 Genetic Analyzer (Perkin Elmer, Foster City, CA) in accordance with the manufacturer's instructions.

The allele type was determined by comparing with an allelic ladder corresponding to each STR system. The frequency of each locus was calculated from the numbers of each observed genotype in the sample set (Table 1). A χ^2 -test (5) was used to verify whether the genotype distribution conformed to Hardy-Weinberg equilibrium predictions. The PD and PE for the 15 STR loci were displayed in Table 2. Data were analyzed by using Promega Software, Powerstats (6).

The results demonstrated that all loci were in Hardy-Weinberg equilibrium. A Turkish population database has been established for

the 15 STR loci (D3S1358, vWA, D16S539, D2S1338, D8S1179, D21S11, D18S51, D19S433, THO1, FGA, TPOX, CSF1PO, D5S818, D13S317, D7S820). The data demonstrates that valid estimates of a multiple STR locus profile frequency can be used for characterization of forensic stains or person analysis in Turkey.

The complete dataset is available to any interested researcher upon request to the corresponding author, A. Topal Sarikaya, via e-mail: atopal@istanbul.edu.tr.

References

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Additional information and reprint requests:
Aysegul Topal Sarikaya
Istanbul University
Department of Molecular Biology and Genetics
Vezneciler 34118
Istanbul, Turkey
Tel: +90 212 455 57 00/15139
Fax: +90 212 514 03 66
E-mail: atopal@istanbul.edu.tr

¹ Crime Laboratory of Istanbul Police Department, Division of Biology, Fatih 34260, Istanbul, Turkey.

² Istanbul University, Department of Molecular Biology and Genetics, Vezneciler 34118, Istanbul, Turkey.

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TABLE 1—Observed allele frequencies in a Turkish population sample (500 individuals).

Allele	D3S1358	VWA	FGA	D16S539	D2S1338	D8S1179	D21S11	D18S51	THO1	TPOX	CSF1PO	D5S818	D13S317	D7S820	D19S433
6	0.300	...	...	...	...	...	...
7	0.168	...	...	0.001	...	0.023	...
8	0.033	...	0.012	...	...	0.119	0.523	0.002	0.005	0.151	0.176	...
9	0.159	...	0.010	...	0.001	0.214	0.110	0.024	0.061	0.084	0.101	...
9.3	0.177	...	...	...	...	...	...
10	0.079	...	0.071	...	0.005	0.022	0.076	0.266	0.082	0.083	0.251	...
11	0.314	...	0.065	...	0.013	...	0.255	0.300	0.316	0.308	0.243	0.006
12	0.243	...	0.103	...	0.128	...	0.036	0.340	0.362	0.264	0.178	0.095
13	0.003	0.013	...	0.150	...	0.306	...	0.139	...	...	0.060	0.156	0.082	0.025	0.274
13.2	0.025
14	0.065	0.109	...	0.022	...	0.222	...	0.210	...	...	0.008	0.017	0.028	0.003	0.287
14.2	0.034
15	0.266	0.101	...	...	...	0.163	...	0.150	...	...	...	...	...	...	0.116
15.2	0.080
16	0.257	0.202	...	...	0.042	0.043	...	0.139	...	...	...	...	...	...	0.043
16.2	0.028
17	0.233	0.286	0.001	...	0.203	0.005	...	0.079	...	...	...	...	...	...	0.011
17.2	0.001
18	0.162	0.196	0.014	...	0.134	...	...	0.055	...	...	...	...	...	...	...
19	0.014	0.081	0.071	...	0.126	...	...	0.042	...	...	...	...	...	...	...
20	...	0.012	0.105	...	0.151	...	...	0.021	...	...	...	...	...	...	...
21	0.185	...	0.032	...	...	0.012	...	...	...	...	...	...	...
22	0.175	...	0.047	...	...	0.006	...	...	...	...	...	...	...
22.2	0.001	...	...	...	...	...	...	...	...	...	...	...	...
23	0.175	...	0.117	...	...	...	...	...	...	...	...	...	...
24	0.164	...	0.072	...	...	...	...	...	...	...	...	...	...
25	0.078	...	0.064	...	0.001	...	...	...	...	...	...	...	...
26	0.028	...	0.009	...	...	...	...	...	...	...	...	...	...
27	0.003	...	0.003	...	0.023	...	...	...	...	...	...	...	...
28	0.133	...	...	...	...	...	...	...	...
29	0.232	...	...	...	...	...	...	...	...
29.2	0.001	...	...	...	...	...	...	...	...
30	0.222	...	...	...	...	...	...	...	...
30.2	0.033	...	...	...	...	...	...	...	...
31	0.055	...	...	...	...	...	...	...	...
31.2	0.115	...	...	...	...	...	...	...	...
32	0.006	...	...	...	...	...	...	...	...
32.2	0.131	...	...	...	...	...	...	...	...
33	0.001	...	...	...	...	...	...	...	...
33.2	0.043	...	...	...	...	...	...	...	...
34.2	0.004	...	...	...	...	...	...	...	...

TABLE 2—HWE test for fifteen STR loci in a Turkish population sample (500 individuals).

	D3S1358	VWA	FGA	D16S539	D2S1338	D8S1179	D21S11	D18S51	THO1	TPOX	CSF1PO	D5S818	D13S317	D7S820	D19S433
H	0.780	0.784	0.854	0.766	0.878	0.828	0.804	0.856	0.786	0.674	0.696	0.712	0.760	0.780	0.794
PD	0.915	0.938	0.962	0.924	0.971	0.939	0.956	0.968	0.924	0.823	0.869	0.888	0.927	0.933	0.940
PE	0.562	0.570	0.703	0.538	0.751	0.652	0.606	0.707	0.573	0.389	0.422	0.447	0.527	0.562	0.588
MP	0.085	0.062	0.038	0.076	0.029	0.061	0.044	0.032	0.076	0.177	0.131	0.112	0.073	0.067	0.060
TPI	2.273	2.315	3.425	2.137	4.098	2.907	2.551	3.472	2.336	1.534	1.645	1.736	2.083	2.273	2.427
PIC	0.74	0.78	0.84	0.76	0.86	0.78	0.82	0.85	0.76	0.59	0.67	0.69	0.76	0.78	0.79
Chi	18.523	30.875	45.980	25.561	56.594	40.247	47.834	46.558	16.090	14.209	11.413	25.146	26.532	18.905	49.459
(<i>p</i> > 0.05)	(df 14)	(df 22)	(df 36)	(df 19)	(df 45)	(df 32)	(df 38)	(df 51)	(df 14)	(df 9)	(df 11)	(df 17)	(df 19)	(df 22)	(df 39)
CPE*	0.99995														
CDP*	0.9999999999998														
CPE**	0.99903														
CDP**	0.9999999998														

H: observed heterozygosity; PD: power of discrimination; PE: power of exclusion; MP: matching probability; TPI: typical paternity index; PIC: polymorphism information content; Chi: chi-square; df: degrees of freedom; CPE: cumulative power of exclusion; CDP: cumulative discrimination power.

* For AmpFISTR SGM Plus kit.

** For AmpFISTR Profiler kit.