



Announcement of population data

Turkish population data on nine short tandem repeat loci:
HumCSFIPO, HumTHO1, HumTPOX, HumFES/FPS,
HumF13B, HumVWA, D3S1358,
D7S820, D16S539

Faruk Aşıcıoğlu^{a,*}, Fatih Akyüz^a, Ümit Çetinkaya^a, Sevgi Yılmaz^a,
Satı Koluçak^a, Burçak Vural^b, Uğur Özbek^b

^aThe Council of Forensic Medicine, Cerrahpaşa, 34300, Istanbul, Turkey

^bInstitute for Experimental Medicine (DETAE), University of Istanbul, Istanbul, Turkey

Received 26 October 2001; accepted 16 January 2002

Abstract

Allele and genotype frequencies for the nine loci, HumCSFIPO, HumTHO1, HumTPOX, HumFES/FPS, HumF13B, HumVWA, D3S1358, D7S820 and D16S539 were determined using Silver STR III System on 223-598 unrelated Turkish individuals from different regions of country.

Keywords: Short tandem repeat; Population studies; Allele frequencies; Turkish

Population: Our donors were sampled from all different regions of Turkey. Whole blood samples from 223 to 598 unrelated Turkish Caucasians were drawn into EDTA vacutainer tubes, also bloodstains were prepared on sterilized cotton cloth, and air dried.

Extraction: The DNA was extracted by the salting out method according to the procedure described by Miller et al. [1], and Chelex extraction was done for bloodstain [2]. The quantity of extracted DNA was estimated using ethidium bromide stained agarose yield gels and measured by spectrophotometer.

PCR: Amplification was performed by strictly following the manufacturer's recommended protocol, and using the commercially available CTT, FFV, Silver STR III triplex kits (Promega Corporation, USA). The PCR was carried out in a MJ Research PTC-200 Thermal Cycler.

Typing: Electrophoresis separation of PCR products were performed by vertical denaturing polyacrylamide gel (36 cm well-to-read) electrophoresis 6% for Silver STR and 4% for CTT and FFV triplex. Silver staining of the gels was performed according to the method described by Budowle et al. [3]. Allele designation was carried out by side to side comparison with allelic ladders [4,5].

Results: See Table 1.

Analysis of data: Allele frequencies for each locus were calculated from the numbers of each genotype. The statistical tests for Hardy-Weinberg Equilibrium by the exact test [6] were performed using the HWE-Analysis program. Heterozygosity rate, power of exclusion, power of discrimination, polymorphism information content, matching probability were carried out as described previously [7].

Other remarks: Additional information on Turkish population samples can be found in [8-12].

*Corresponding author. Tel.: +90-212-586-5522; fax: +90-212-251-2304.
E-mail address: fasicioglu@hotmail.com (F. Aşıcıoğlu).

Table 1
Distribution of allele frequencies for nine STR loci in Turkish population

STR allele frequencies	D7S820 (n = 1196)	FESFPS (n = 904)	D13S317 (n = 1196)	TPOX (n = 784)	F13A01 (n = 918)	D16C539 (n = 646)	VWA (n = 648)	CSF1PO (n = 446)	TH01 (n = 962)
3.2					0.124				
4					0.063				
5					0.240				
6					0.260				0.279
7	0.020	0.023		0.001	0.277				0.164
8	0.150	0.012	0.139	0.528	0.007	0.040			0.126
9	0.101	0.005	0.095	0.117		0.160		0.040	0.224
9b									0.174
10	0.275	0.273	0.056	0.076		0.102		0.287	0.030
11	0.254	0.423	0.280	0.237		0.267		0.271	
12	0.175	0.232	0.315	0.034	0.004	0.267		0.318	
13	0.021	0.047	0.073		0.001	0.133	0.001	0.070	
14			0.030		0.005	0.023	0.086	0.009	
15			0.0008		0.020	0.023	0.087	0.004	
16					0.005		0.226		
17							0.307		
18							0.197		•
19							0.084		
20							0.004		
21							0.003		
HR	0.761	0.662	0.773	0.661	0.749	0.783	0.796	0.717	0.767
PE	0.529	0.371	0.549	0.370	0.509	0.568	0.592	0.456	0.540
PD	0.929		0.920	0.816	0.921	0.929	0.927	0.885	0.930
d.f.	21		28	15	55	28	36	21	15
2p	0.339		0.903	0.338	0.814	0.580	0.850	0.429	0.293
χ^2	23.075		18.817	16.684	45.432	25.867	27.328	21.490	17.428
PIC	0.760		0.750	0.600	0.750	0.770	0.760	0.690	0.770
MP	0.071		0.080	0.184	0.079	0.071	0.073	0.115	0.070

HR: heterozygosity rate, PE: power of exclusion, PD: power of discrimination, d.f.: degree of freedom, PIC: polymorphism information content, MP: matching probability.

References

- [1] S.A. Miller, D.D. Dykes, H.F. Polesky, A simple salting out procedure for extracting DNA from human nucleated cells, *Nucl. Acids Res.* 16 (1988) 1215.
- [2] P.S. Walsh, P.A. Metzger, R. Higuchi, Chelex 100 as a medium for simple extraction of DNA for PCR-based typing from forensic material, *Biotechniques* 10 (1991) 506-513.
- [3] B. Budowle, R. Chackraborty, A.M. Guisti, A.J. Eisenberg, R.C. Allen, Analysis of the variable number of tandem repeats locus D1S80 by the polymerase chain reaction followed by high resolution polyacrylamide gel electrophoresis, *Am. J. Hum. Genet.* 48 (1991) 137-144.
- [4] A. Moller, B. Brinkmann, Locus ACTBP2 (SE33) sequencing data reveal considerable polymorphism, *Int. J. Leg. Med.* 106 (1994) 183-189.
- [5] P. Wiegand, B. Budowle, S. Rand, B. Brinkmann, Forensic validation of the STR systems SE33 and TC11, *Int. J. Leg. Med.* 105 (1999) 3315-3320.
- [6] S.W. Guo, E.A. Thompson, Performing the exact test of Hardy-Weinberg proportion for multiple alleles, *Biometrics* 48 (1992) 361-372.
- [7] A. Tereba, Tools for analysis of population statistics, *Profiles DNA 2* (1999) 14-16.
- [8] M. Iwasa, P. Wiegand, M. Schurenkamp, S. Atasoy, B. Brinkman, Genetic variation at five STR loci in subpopulations living in Turkey, *Int. J. Leg. Med.* 110 (1997) 170-172.
- [9] B.S. Akbasak, B. Budowle, D.J. Reeder, J. Redman, M.C. Kline, Turkish population data with the CODIS multiplex short tandem repeat loci, *Forensic Sci. Int.* 3165 (2001) 1-3.
- [10] A. Akhayat, F. Alshamali, B. Budowle, Population data on the PCR-based loci LDLR, GYPA, HBG, D7S8, Gc, HLA-DQA1, and D1S80 from Arabs from Dubai, *Forensic Sci. Int.* 81 (1996) 29-34.
- [11] B. Alper, M. Meyer, M. Schurenkamp, B. Brinkmann, HumFES/FPS and HumF13B: Turkish and German population data, *Int. J. Leg. Med.* 108 (1995) 93-95.
- [12] B. Vural, M. Poda, E. Atlioglu, O. Kolusayin, A. Cenani, N. Morling, Z. Turner, Turkish population data on the short tandem repeat locus TPOX, *Int. J. Leg. Med.* 111 (1998) 105-106.