

FOR THE RECORD

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Polymorphisms of D1S80 and 3'ApoB Minisatellite Loci in Northern Caucasus Populations

POPULATION: Russians (Kuban Cossacks) ($n = 65$), Adygeis ($n = 674$), Circassians ($n = 75$), Abkhazians ($n = 82$)

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The study encompasses indigenous populations inhabit North-western region of Caucasus, namely: Adygeis, Adygei-Shapsugs, Abkhasians, Circassians (all of which belong to Adygei-Abkhazian linguistic family), and Kuban Cossacks (Russians of Krasnodar region, Indo-European linguistic family). Abkhazians from The Republic of Abkhazia and Adygei-Shapsugs live on Black Sea seashore, while others inhabit Northwestern area of Caucasus between Main Caucasus Mountain Chain, Taman peninsula, and Kuban Steppes. Circassians are from The Kabardino-Balkar Republic, and Kuban Cossacks are from Krasnodar region of Russia. Adygeis were following subdivided in Western (Teuchezhsky, Takhtamukaisky and Krasnoguardeisky districts of Krasnodar region) and Eastern (Showgenovskiy and Koschekhabl'skiy districts) regions of The Republic of Adygeia. The Adygei-Shapsug population sample was collected in Lazarevskiy and Tuapsinskiy districts of Krasnodar region (The Republic of Adygeia).

Blood samples were obtained by venepuncture in EDTA-coated vacutainers after obtaining each individual's informed consent. To fulfill the selection criteria, all individuals needed to belong to the native ethnic group of the regions studied (with at least three generations living in the region), to be unrelated to each other and to be healthy. Analysis of D1S80 and 3'ApoB polymorphisms were made exactly as described by Verbenko et al. (1,2). A total of 24 dif-

ferent alleles of D1S80 (Table 1) and a total of 22 alleles of 3'ApoB (Table 2) were found (3). Genotype distributions for these loci in populations studied showed no significant departures from HWE proportions. Observed heterozygosity for D1S80 ranged from 75% to 83%, and was almost the same for 3'ApoB minisatellite, varying from 73.5% to 87.5%.

The most frequent D1S80 alleles in populations studied are allele 24 (>34%), followed by allele 18 (>22%). Two different types of alleles contains more than 41 repeats (4) were detected in West Adygeis, as well shortest one was detected in Circassians. A difference between Russians from Northern Caucasus and populations of Adygei-Abkhazian linguistic family can be noted in the frequency of low copy number alleles (contains 15, 16, or 17 tandem repeats).

The allele frequency distribution of 3'ApoB minisatellite is bimodal with main peaks at alleles 34 (>26%) and 36 (>25%). Whereas populations of Adygei-Abkhazian linguistic family characterized with little difference in major allele frequencies, this difference is significant in Kuban Cossacks. This is in agreement with early studies of 3'ApoB minisatellite variability in Adygeis and Russians (2).

The complete data set is available upon request at email: dav@img.ras.ru.

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TABLE 1—*DIS80 allele frequencies and other population characteristics of North Caucasus populations.*

Allele	Abkhazians	Adygeis			Circassians	Russians
		Shapsugs	West	East		Kuban Cossaks
15					0.007	
16	0.006	0.005	0.020		0.020	
17		0.003	0.004	0.007		
18	0.262	0.264	0.267	0.228	0.227	0.227
19		0.003			0.013	
20			0.002			0.007
21	0.006	0.016	0.004	0.024	0.013	0.016
22	0.031	0.036	0.046	0.041	0.040	0.055
23	0.012	0.012	0.004	0.007	0.020	
24	0.372	0.350	0.399	0.375	0.340	0.406
25	0.073	0.067	0.057	0.062	0.067	0.086
26	0.031	0.015	0.015	0.031	0.027	0.039
27	0.024	0.015	0.008	0.007	0.020	
28	0.098	0.067	0.052	0.076	0.073	0.047
29	0.055	0.055	0.050	0.059	0.087	
30	0.006	0.009	0.004	0.021	0.007	
31	0.024	0.067	0.046	0.059	0.013	0.070
32			0.002			
33			0.004			
34					0.013	
36		0.016	0.008			0.016
37				0.003	0.007	0.016
40						0.016
>41			0.006		0.007	
Chromosome Number	164	580	476	290	150	128
Number of Distinct Alleles	13	16	19	14	18	12
Number of Distinct Genotypes	26	55	47	37	35	21
Observed Homozygosity	0.829	0.797	0.765	0.8	0.8	0.75
Expected Heterozygosity	0.772	0.79	0.756	0.787	0.811	0.764
Likelihood Ratio Test for HWE						
G-squared	54.18	96.88	92.76	68.22	80.56	63.72
Probability	0.982	0.94	1	0.964	1	0.556
Degree of Freedom	78	120	171	91	153	66

TABLE 2—3'ApoB minisatellite allele frequencies and other population characteristics in North Caucasus populations.

Allele	Abkhazians	Adygeis			Circassians	Russians
		Shapsugs	West	East		Kuban Cossaks
25					0.007	
27			0.002			
30	0.100	0.066	0.075	0.124	0.142	0.069
31		0.005	0.008			
32	0.012	0.018	0.060	0.036	0.027	0.054
33		0.003			0.013	
34	0.287	0.341	0.324	0.284	0.264	0.246
35	0.019	0.005	0.004		0.007	
36	0.300	0.312	0.285	0.333	0.270	0.392
37	0.013					0.008
38	0.106	0.070	0.073	0.085	0.068	0.039
39	0.006					
40	0.013	0.002	0.002	0.004	0.007	0.031
42					0.007	
44	0.013	0.007	0.006	0.014	0.034	0.015
45	0.044	0.009	0.015	0.014	0.020	0.015
46	0.031	0.061	0.039	0.021	0.047	0.077
47		0.002				
48	0.044	0.081	0.089	0.067	0.054	0.039
50	0.012	0.018	0.012	0.018	0.020	0.008
52			0.006			0.008
54					0.013	
Chromosome Number	160	558	482	282	148	130
Number of Distinct Alleles	14	15	15	11	16	13
Number of Distinct Genotypes	27	40	46	28	33	27
Observed Homozygosity	0.875	0.735	0.772	0.794	0.865	0.769
Expected Homozygosity	0.8	0.767	0.79	0.779	0.824	0.767
Likelihood Ratio Test for HWE						
G-squared	62.4	83.14	63.41	43.56	59.91	39.06
Probability	0.99	0.943	1	0.867	1	1
Degree of Freedom	91	105	105	55	120	78

NOTE: Allele number according to Ludwig et al. (3).

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