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Allele and haplotype frequencies of HLA-A, -B, -C, -DRB1, -DQB1 in Northern Ossetians from Vladikavkaz, Russia

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Abstract

This report shows the HLA-A, -B, -C, -DRB1 and -DQB1 allele and haplotype frequencies in a population of 127 healthy Ossetian donors of blood marrow from Vladikavkaz, Russia. First- and second-field (for HLA-C locus) HLA genotyping was performed by polymerase chain reaction sequence-specific priming and/or oligonucleotide probes. Statistical analysis were performed using gene counting and Arlequin software packages. There was no deviation from Hardy-Weinberg equilibrium for all tested loci. The HLA genotypic and haplotypic data of the Ossetians reported here are available in free access at the Allele Frequencies Net Database (<http://www.allelefrequencies.net>). This data can serve as a reference database for further HLA-based studies in population genetics.

North Ossetia–Alania, also called North Ossetia is a republic in southwestern Russia, on the northern flank of the Greater Caucasus range. It is bordered on the west with the Kabardino-Balkar Republic of the Russian Federation, on the north with Stavropol Krai of the Russian Federation and on the east with the Republic of Ingushetia and the Chechen Republic of the Russian Federation. The southern border of North Ossetia coincides with the boundary of the Russian Federation and main watershed of the Greater Caucasus. The capital and the largest city of North Ossetia is Vladikavkaz. North Ossetia is populated by Russians, Ingush, Armenians, Georgians, and Ukrainians, but the Ossetians are the main population (over 64%) [1]. The Ossetians speak language belongs to the Iranian group of the Indo-European family of languages (Ethnologue: oss “Ossetian”); whereas their geographic neighbors all speak Caucasian languages.

There are two main hypotheses concerning the origin of the Ossetians and their language. According to the first hypothesis, in ancient time Ossetia was under Scythian-Sarmatian influence, which was succeeded by the Alani, an Iranian-speaking warrior Sarmatian tribe and the Ossetians are the direct descendants of the Alani. The second hypothesis describes the origin of the Ossetians as descendants of one of the autochthonous groups from the Caucasus, who adopted an Iranian language from the Alani in the early Middle Ages [2, 3].

A number of population genetic studies have been carried out on Ossetian groups. The Northern Ossetians show greater similarity with the Russians than with neighbouring populations from the Caucasus by classical genetic markers. Genetic studies of mtDNA and Y chromosome show that the Northern Ossetians share maternal ancestry with other Iranian peoples but have paternal ancestry in common with their non-Iranian neighbors [3, 4].

In order to investigate the HLA diversity of the Northern Ossetians, DNA of one hundred and twenty seven (n=127) unrelated potential donors of bone marrow who lived in Vladikavkaz and according to their self-assessments were the Ossetians by ethnicity was collected. An informed consent for the anonymous use of genomic data for research purposes was obtained from all of the donors. The HLA genotype, haplotype and allele frequencies are available in free access at the Allele Frequencies Net Database [5] under the population name “Russia North Ossetian” under the identifier 3436.

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