

<https://doi.org/10.7124/bc.000BA6>

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MITOCHONDRIAL PORTRAIT OF A LEFT-BANK LOWER SULA COSSACK POPULATION

Background. The matrilineal heterogeneity of Cossack-descendant populations is understudied. A genetically isolated Cossack community persisted until the mid-20th century in the village of Narizhzhia (Lower Sula, Poltava oblast), founded in 1704–1706 by 36 Cossack families, with 90–97% of the population being registered Cossacks. **Material and Methods.** blood samples for mtDNA analysis were collected from 25 native residents of Narizhzhia (7 men, 18 women) representing 21 lineages, traced through genealogies of 3–7 generations. Sequencing was performed with the Precision ID mtDNA Whole Genome Panel using an Ion GeneStudio S5 sequencer. Results were compared with the DNDEKC database of modern Ukrainian mitogenomes ($n = 889$), GenBank, and Ancient mtDNA Database records to reconstruct haplotype migration tracks. **Results.** 21 mtDNA haplotypes from 9 macrohaplogroups were found: H – 47.6% (H1b-T16189C!, H1c, H1c9, H4, H4a1, H5a3a3, H6a1b3, H6a1a2b1, H8-T195C!, H10-T16163C); HV – 9.5% (HV-T16311C, HV4a2b); V – 9.5% (V, V13); I, W, K, U4, U5, J, T – 4.8% each. Compared with the DNDEKC database, the Narizhzhia spectrum showed: H, U4, K frequencies close to the national average; U5 threefold and J, T twofold – lower (14.5%, 8.1%, 9.8%, respectively); HV threefold and V twofold – higher (2.9% and 4.5%). Overall, the mtDNA spectrum is closer to Western, Central, and Northern European populations than to Eastern European populations. **Conclusions.** Analysis of probable migration tracks of each mtDNA haplotype of the Lower Sula Cossacks, of phylogenetic trees, final formation territories, and their appearance time and place in Ukraine showed that most haplotypes represented in Narizhzhia were formed in Central and Northwestern Europe (15 haplotypes) and reached Ukraine territory during the Eneolithic-Middle Ages via the Volyn Corridor (12), the western “from the Varangians to the Greeks” migration route (2), and with the expansion of bearers of La Tène culture (1). Three haplotypes formed in the Black Sea-Caspian steppes during the Iron Age-Middle Ages and then spread into Ukraine. Two haplotypes (HV-T16311C and T2b13) arose in the Paleolithic/Neolithic periods and represent a fully autochthonous “Ukrainian” component. One haplotype (H4a1) originated in North Africa/Iberia during the Iron Age and reached Ukraine via a rapid, single-event transfer, possibly linked to the Roman slave trade.

Keywords: mtDNA, haplogroup, matrilineal ancestry, NGS.

Received: 06.07.2026; Accepted: 08.09.2026; Published: 29.09.2026

Citation: Kostikov I.Y., Mariyko V.V., Abbasov R.H. (2026) Mitochondrial portrait of a left-bank lower Sula cossack population. *Biopolymers & Cell*, Special issue(42), 109. <https://doi.org/10.7124/bc.000BA6>

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