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THE FIRST RESULTS OF Y-DNA HAPLOGROUP TESTING FOR A MEDIEVAL RUSSIAN BURIAL OF THE 16TH – 17TH CENTURIES IN RADONEZH (MOSCOW AREA)

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Abstract

This paper reports about the result of defining Y-DNA haplogroup for a medieval Russian man, whose remains were excavated in Radonezh area. The burial is dated by the 16th – 17th centuries, which was the periods of Russian Tsardom and the Time of Troubles. Radonezh was the centre of the Orthodox Church. The paper describes the burials, genotyping method, and the results. The obtained Y-DNA haplogroup is R1a1, typical for the Slavic population of Russia.

Keywords: haplogroup, Medieval Rus, Y-DNA, R1a1.

ПЕРВЫЕ РЕЗУЛЬТАТЫ ОПРЕДЕЛЕНИЯ Y-ХРОМОСОМНОЙ ГАПЛОГРУППЫ ДЛЯ СРЕДНЕВЕКОВОГО ЗАХОРОНЕНИЯ XVI–XVII вв. В РАДОНЕЖЕ (МОСКОВСКАЯ ОБЛАСТЬ)

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Авторское резюме

Представлен первый результат определения Y-ДНК гаплогруппы из средневекового русского захоронения в окрестностях города Радонеж. Захоронение относится к XVI–XVII вв., периоду Русского царства и Смутного времени. Приводятся описание захоронения, метод генотипирования и результат. Для извлеченного ДНК выявлена гаплогруппа R1a1, типичная для славянского населения России.

Ключевые слова: средневековая Русь, Y-ДНК гаплогруппа, R1a1.

The research was carried out for the osteologic materials, namely, one skull excavated in 1989 from the Radonezh cemetery of XVI–XVII centuries. The excavations were made by the Sergiev Posad (former Zagorsk) State History and Art Museum-Preserve expedition lead by Dr. V.I. Vishnevsky.

Radonezh was a medieval Russian town near Serguiev Posad (but more old) and has become a small village. It is near 55 km from Moscow. The town of Radonezh was founded in the XI century by Novgorod set-

tlers near the preceding Finno-Ugric and Slavic Krivichi villages. Then Radonezh became a part of Vladimir-Suzdal and Moscow princedoms. The famous Trinity Monastery of the Russian Orthodox Church started in the vicinities of Radonezh.

The skull taken for the research is kept in the laboratory of the archaeological section of the Sergiev Posad State History and Art Museum-Preserve Below is the description of the skull taken from the report on the expedition¹:

Burial Nr. 1 (K8-A-5/1-2). No traces of a pit. The burial is filled by the light-brown soil with the ceramic fragments. It is oriented to the South-West by the head, azimuth 245 degrees. The depth is 0.9 from the surface. The bones are of medium safety, the skeleton lies on the right side. The knees lie 20 cm from each other. The feet and shins were destroyed by the later burials. The hands are folded together. The orbits are oriented towards the South-West. The skeleton is attributed to a man of the age about 25 years. In the nose bridge and in the crown area there are small oval holes of around 1 cm diameter. An iron knife was found near the hips, a bronze cross with the Calvary depiction was found below the right shoulder. The cross was dated by M.V. Sedova by XVI–XVII centuries.

According to the dating²:

“The estimated time of the Radonezh burial functioning can be estimated around a century. The latest burial Nr. 1, which overlays the burial Nr. 13 (dated by the coin of 1560-1584) can be dated by the early beginning of the XVII century. In 1617 the nearby Church of the Athanasius the Great was mentioned in the landmark book as empty, so the cemetery was abandoned. So the Athanasius the Great cemetery functioned from the beginning of XVI century to the beginning of XVII century”.

The skull was transferred in 2016 to the Moscow to the Laboratory of Historical Genetics, Radiocarbon Analysis, and Applied Physics of Biopharmaceutical cluster “Northern” and the Moscow Institute of Physics and Technology (headed by Dr. Kh.Kh. Mustafin). The DNA from a tooth was extracted and then the procedure of sequencing was performed.

The research of the old DNA was carried out in a module, consisting of four glove boxes. To avoid the contamination each box was strictly separated from each other and from the environment and the atmosphere air was replaced by the inert gas of high purity. The DNA from the skull was extracted by means of the commercial kit **PrepFiler BTA Forensic DNA**, what is used in criminalistics and forensic medicine for the extraction of degraded DNA from complicated objects. The obtained DNA was analyzed by means of the standard molecular genetic techniques including real-time PCR on the **AB7500** equipment, fragment analysis and sequencing on genetic analyzer **AB3500 XL**.

The Y-DNA analysis revealed the R1a1 Y-DNA haplogroup, typical for the Slavic population. The obtained result can be compared with other still scarce results of the Slavic Y-DNA haplogroups (Table).

Now the Laboratory continues the works on the defining of mitochondrial DNA haplogroup by the capillary sequencing on **AB3500 XL** device. The detailed analysis to identify the subclade of R1a1 is also in process.

Of course, having only the first medieval Y-DNA haplogroup from Moscow area it is too early to make the final conclusion. But the first R1a1 finding in the medieval Russian burial supports the point of view that strong R1a1 presence was inherent for all medieval Russian lands from Carpathians to Volga not depending from the state borders.

Known Y-DNA haplogroups from different Old Slavic burial

Site	Y-DNA haplogroup	Source
Devichi Gory , Pskov district, (VIII–X centuries)	N1c	(Chekunova et al.)
Usedom , Eastern Germany (XIII century)	R1a1-M458, E1b1b	(Freder)
Radonezh , beginning of XVII century	R1a1	this work

Concerning Radonezh, we have two scenarios either the man was the descendant of Slavic settlers of Russian times or he was the descendant of pre-state settlers – Finns, Balts, or early Krivichi Slavs. The high concentration of Y-DNA N1c in Finnic and Baltic populations, and old N1c in possible Krivichi burial (Devichi Gory, Pskov area) give a first argument that the buried man was the descendant of the Slavic settlers of Russian times. But to increase the reliability, the future research is needed.

NOTE

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