

THE NEVERENDING STORY: A NEW TSAREVITCH ?

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Summary

A case of assumed lineal descent from the family of the Russian Tsars was investigated. Using 4 STR-system two exclusion constellations were found. These results emphasize the importance of STR systems for the assessment of such cases.

Introduction

In 1944 we were privately charged to examine a case of possible lineal descent from the family of the Russian Tsars. In the course of the last decades individuals have been claiming such a descent time and again, but since the publication of a British-Russian team of scientists in 1994 (1) there is an opportunity of testing such claims by molecular-biological means. The investigation of the skeletons from a mass grave in Ekaterinburg made their identification as the last Tsar and his family highly probable, although two skeletons (one male and one female descendant) were missing. In our case the individuals concerned are 4 brothers and sisters and their mother. Except for one daughter the family lives in St. Petersburg. Various circumstances suggested that the deceased father of the siblings could have been the Tsarevitch. The siblings came in person to Düsseldorf to have blood samples taken, the mother's blood was transported via aeroplane from St. Petersburg. It also seems worth mentioning that the results of a preliminary anthropological investigation in St. Petersburg seemed promising by the written report we received. The assumed family tree is shown in Tab. 1. Photographs of the missed Tsarevitch Alexeij and of Oleg F. are presented in Fig. 1.

Materials and Methods

DNA extraction and typing were realized by routine methods.

Results and Discussion

To test the genetic relations between siblings and mother, a total of 33 systems were investigated (Tab. 2). There were no contradictions to the laws of heredity. The investigations of the British-Russian research team on the skeletons referred to the STR-systems HumTC11, HumVWA, HumFES, HumF13A and SE 33, so these systems were decisive in the evaluation of the paternal hereditary traits. Because of differences in nomenclatures, we refrained from including the SE33 system in our analysis. The genetic traits of the deceased father corresponded in the HumVWA3 1 and HumF13A systems. There was one classical exclusion constellation in each the HumTHO1 and HumFES systems.

The results of the present case emphasize the importance of STR systems for the assessment of deficiency cases in paternity testing.

(1) P Gill, PL Ivanov, C Kimpton, R Piercy, N Benson, G Tully, I Evett, E Hagelberg, K Sullivan (1994) Identification of the remains of the Romanov family by DNA analysis. *Nat Genet* 6, 130-135

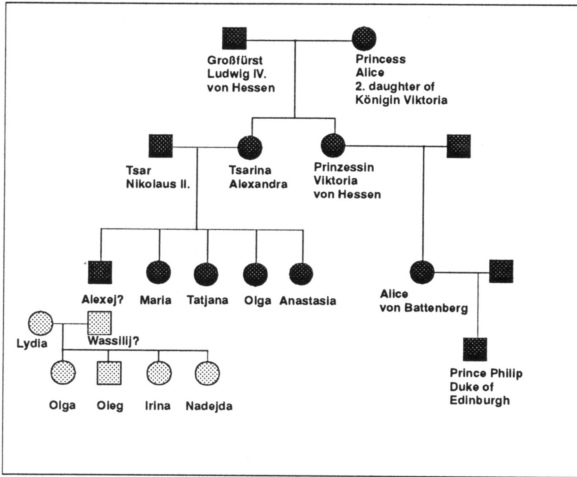


Table 1 The pedigree: Wassilij = Alexej ?

Fig. 1 Oleg and Alexej

	Oleg Child	Irina Child	Nadeja Child	Olga Child	Lydia Mother	Wassilij Father	Tsar*	Tsarina*
ABO	A1	A1	O	A1	A1	O		
MNSs	Nss	MNSs	MNSs	Nss	Nss	MS		
Rhesus	R2r	R1R2	R2r	R2r	R1r	R2		
Kell	K-k+	K-k+	K-k+	K-k+	K-k+	k+		
Duffy	a-b+	a-b+	a-b+	a-b+	a-b+	a+		
P	P+	P+	P-	P+	P+			
Kidd	a-b+	a-b+	a-b+	a-b+	a-b+	b+		
Lutheran	a-	a-	a-	a-	a-			
Colton	b-	b-	b-	b-	b-			

Hp	2	-	2	2	2	2		
Gc	2-1F	2	2	2	2	1F		
Gm	1-2 3 10	-1-2 3 10	-1-2 3 10	-1-2 3 10	-1-2 3 10	1		
Km	-1 3	-1 3	-1 3	-1 3	-1 3	3		
C 3	S	FS	S	FS	FS	S		
Tf	C1	C1	C1	C1	C1	C1		
Bf	S	S	S	S	S	S		
Pi	M1	M1	M1	M1	M1	M1		
acP	BC	AB	B	AC	BC	AB		
PGM ₁	a3a1	a1	a1	a3a1	a1	a3		
ADA	1	1	1	1	1	1		
GPT	2	2	2-1	2	2-1	2		
EsD	1	1	1	1	1	1		
GLO	2	2	2	2	2	2		
PGP	1	1	1	1	1	1		

HumTH01	7-9.3	7-9	9-9.3	9-9.3	7-9.3	9	7-10	8-8
HumVWA	16-16	16-16	16-16	16-16	16-16	16	15-16	15-16
HumFES	11-13	11-11	11-13	11-13	11-13	11	12-12	12-13
HumF13A	3.2-7	6-7	6-7	3.2-6	3.2-6	7	7-7	3-5
HLA-DQα	1.2-3	1.2-3	3-3	3-3	1.2-3	3		
DIS80	24-30	24-28	24-30	24-28	24-24	28-30		
LDRL	BB	BB	AB	AB	BB	AB		
GYPA	BB	AB	AB	BB	BB	AB		
HBGG	BB	BB	BB	AB	BB	AB		
D7S8	AB	AA	AB	AA	AB	AA		
GC	AB	AA	AA	AA	AA	AB		

Table 2 Serological findings (* according to Gill et al., 1994)