



## “The Friedrich-Schiller-Code”

**The Institute of Legal Medicine, Innsbruck Medical University, has determined the “Friedrich-Schiller-Code”.**

**This was accomplished by comparative DNA analyses with the remains of Schiller’s contemporary relatives.**

**There is now no more doubt that the putative Schiller skull from the “Weimarer Fürstengruft” does not belong to Friedrich Schiller.**

There were two skulls that have been reported to belong to Friedrich Schiller, the so-called “Fürstengruft-“ and the “Froriep-skull”. DNA analysis should identify the correct one.

The Institute of Legal Medicine, Innsbruck Medical University harbours the Austrian Central DNA-Laboratory of the Ministry of the Interior, which is also known as an internationally renowned reference DNA laboratory. It is the first forensic DNA laboratory to be accredited (ISO 17025) in the German speaking field of legal medicine. Besides its core task as crime scene investigation laboratory it has successfully handled prominent identification cases.

The “Friedrich-Schiller-Code” was determined by a team of 9 scientists and 4 technical staff members in a total of about 1,100 single DNA analyses.

For the identification of the “Friedrich-Schiller-Code” latest DNA technology was applied and the following DNA-systems were investigated:

Autosomal STRs (=Short Tandem Repeats) are inherited from both parents to their children and are therefore suitable for the analysis of paternity constellations. Due to their high variability autosomal STRs are also applied for human identification cases such as for stains found at crime scenes.

Y-chromosomal STRs are passed from fathers to their sons exclusively. By comparison relatedness within the male lineage can be tested and excluded with high certainty when the Y-STR profiles are not identical.

Mitochondrial (mt)DNA is passed from mothers to their children of both sex. By comparison relatedness within the maternal lineage can be tested and excluded with high certainty when the mtDNA profiles are not identical.

The Armed Forces DNA Identification Laboratory (AFDIL, Rockville MD) performed independent DNA analyses on the samples. All DNA results between Innsbruck and Rockville were identical to each other. There were no differences in the investigated markers.

Research has been performed on two different skulls, on the assumed skull of Friedrich Schiller ("Fürstengruft"-skull), and on a skull attributed to Friedrich Schiller in former times ("Froriep"-skull).

The "Froriep"-skull from an adjoining room of the Fürstengruft harbours a female DNA-profile and is likely to originate from Louise von Göchhausen.

Let's look at the results from the assumed skull of Friedrich Schiller ("Fürstengruft"-skull) and the detection of the Friedrich-Schiller-Code.

The mtDNA of Friedrich Schiller's sister Christophine Reinwald matched the mtDNA of other maternal relatives buried in Möckmühl. Therefore, the mtDNA-Schiller-Code is established. The mtDNA of the "Fürstengruft-skull" is different and does either not belong to Friedrich Schiller or he and his sisters had different mothers (theory of the changeling).

Schiller's sons Ernst and Karl and his son Ernst have the same Y-chromosomal DNA, which constitutes Friedrich Schiller's Y-Code. This one is different to the one of the "Fürstengruft-skull". Therefore, the skull can only be from Friedrich Schiller, if he was a changeling and not the biological father of the two brothers Ernst and Karl.

The autosomal STRs analyses unambiguously demonstrate that Charlotte is the biological mother and Christophine Reinwald the aunt of Ernst and Karl. The two families are now linked by DNA which requires a direct male relative of Christophine to pass it to the next generation. Friedrich Schiller was the only possible person to pass the DNA, as there is no other male relative to be considered. Thus, the "Fürstengruft-skull" cannot belong to Friedrich Schiller, as the Y-chromosomal DNA results do not match to the sons.

KLASSIK  
STIFTUNG  
WEIMAR

Die Stiftung

# The Friedrich-Schiller-Code



# Institute of Legal Medicine, Innsbruck Medical University



## CSI DNA-laboratory

- 1990 Development of a DNA-laboratory
- 1997 Austrian Central DNA laboratory >20.000 DNA analyses/year
- 2002 Accreditation (ISO 17025)

## Identification cases

- 2004 Günther Messner (30 years)
- 2004 Aramus (1800 years)
- 2005 Tsunami-victims Sri Lanka (100 days)
- 2006 Mozart (250 years)
- 2007 Schiller-Code (200 years)

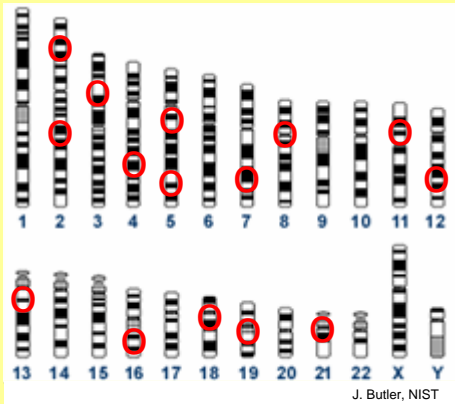
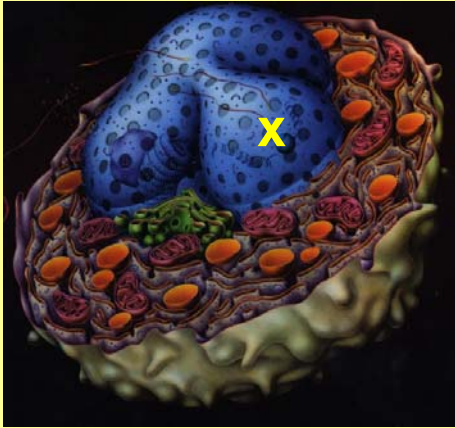


# The „Friedrich-Schiller-Code“ team at the GMI

ca. 1.100 single DNA analyses



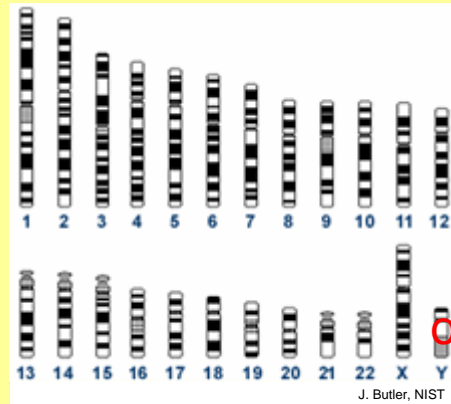
## (autosomal) STR



highly polymorphic; inherited equally from both parents

Paternity casework  
CSI

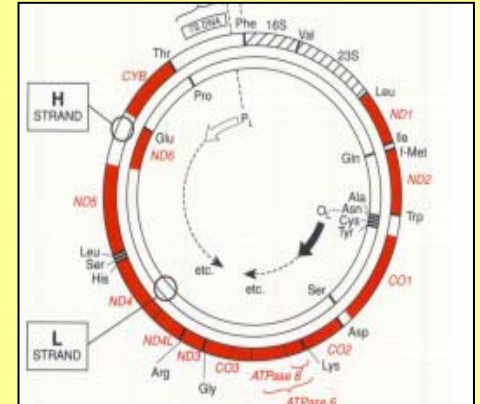
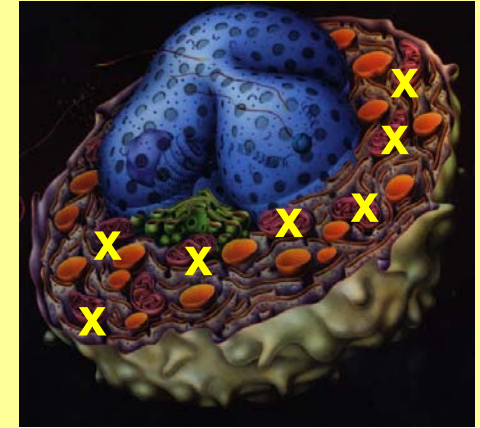
## Y-STR



Paternal inheritance

Possibility to exclude relatedness along the paternal lineage

## mtDNA



Maternal inheritance

Possibility to exclude relatedness along the maternal lineage

# Results Fürstengruft

**All DNA results** between Innsbruck und Rockville (Armed Forces DNA ID Laboratory) **were identical to each other.** There were no differences in the investigated markers.

Research has been performed on two different skulls, on the assumed **skull of Friedrich Schiller** (“**Fürstengruft**”-skull), and on a skull attributed to Friedrich Schiller in former times (“**Froriep**”-skull).

**The “Froriep”-skull** from an adjoining room of the Fürstengruft harbours a female DNA-profile and **is likely to originate from Louise von Göchhausen.**

Let’s look at the results from the assumed **skull of Friedrich Schiller** (“**Fürstengruft**”-skull) and the **detection of the Friedrich-Schiller-Code.**

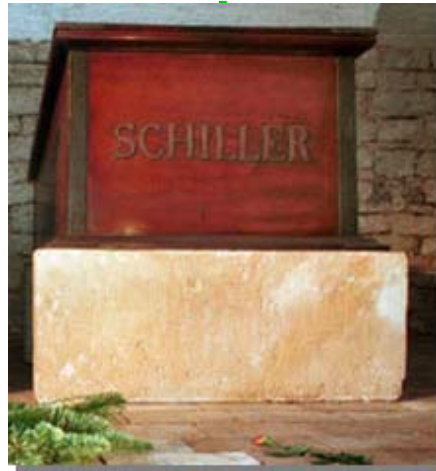
**Johann C.  
Schiller**

\* 27.10.1723  
+ 07.09.1796  
(Gerlingen)

**Elisabeth  
Dorothea  
Kodweiß**

\* 13.12.1732  
+ 29.04.1802  
(Cleversulzb')

**mtDNA – Schiller - Code**



**Christophine  
Reinwald  
geb. Schiller**

\* 04.09.1757  
+ 31.08.1847  
(Meiningen)

**Luise D.  
Franckh  
geb. Schiller**

\* 23.01.1766  
+ 14.09.1836  
(Möckmühl)

(Mockmühl)

(Mockmühl)

mtDNA

Either is the „Fürstengruft“-skull not from Friedrich Schiller  
*or*  
Friedrich Schiller was a changeling  
(different mothers)

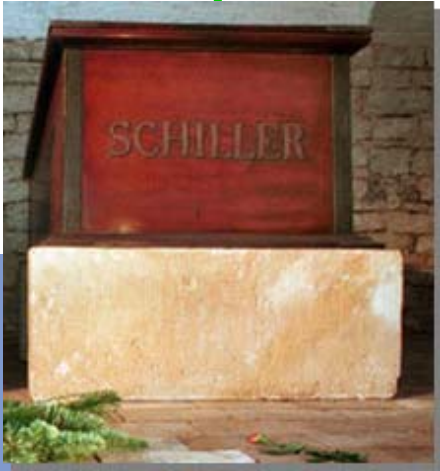
**Y – Schiller - Code**

**mtDNA – Schiller - Code**

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**Charlotte v. Lengefeld**  
\* 22.10.1766  
+ 09.07.1826  
(Bonn)



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**Ernst v. Schiller**  
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**Karl Freiherr v. Schiller**  
\* 14.09.1793  
+ 21.06.1857  
(Stuttgart)

**Ernst Freiherr v. Schiller**  
\* 28.12.1826  
+ 08.05.1877  
(Stuttgart)

**mtDNA Y**

The „Fürstengruft“-skull can only belong to Friedrich Schiller if he was a changeling and if he was not the biological father of his two sons (who have the same single father)



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\* 27.10.1723  
+ 07.09.1796  
(Gerlingen)

**Elisabeth Dorothea Kodweiß**

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**Ernst v. Schiller**

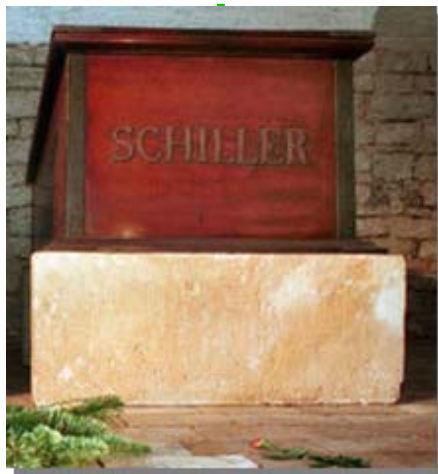
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(Möckmühl)

(Mockmühl)

(Mockmühl)

mtDNA Y STRs

	STR	D8	
Charlotte	12	13	
Ernst	13	14	
Karl	12	15	

Is Charlotte the biological mother of Ernst und Karl?

Yes, with a likelihood of 99,9999%

# STR – Schiller - Code

**Johann C. Schiller**

\* 27.10.1723  
+ 07.09.1796  
(Gerlingen)

**Elisabeth Dorothea Kodweiß**

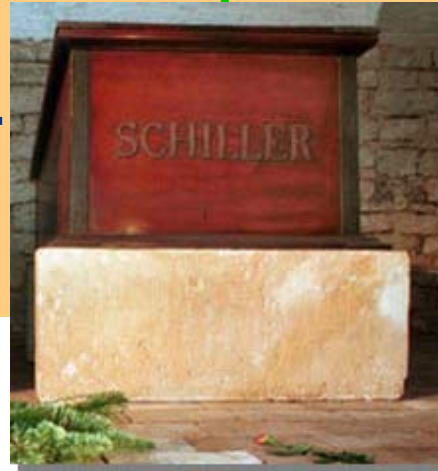
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+ 29.04.1802  
(Cleversulzb')

**Charlotte v. Lengefeld**

\* 22.10.1766  
+ 09.07.1826  
(Bonn)

**Friedrich v. Schiller**

\* 10.11.1759  
+ 09.05.1805  
(Weimar)



**Christophine Reinwald geb. Schiller**

\* 04.09.1757  
+ 31.08.1847  
(Meiningen)

**Luise D. Franckh geb. Schiller**

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\* 28.12.1826  
+ 08.05.1877  
(Stuttgart)

Is Christophine the aunt of Ernst and Karl?

Yes, with a likelihood of 99,9999%

Therefore, Friedrich Schiller must be the father of his two sons Ernst and Karl

mtDNA

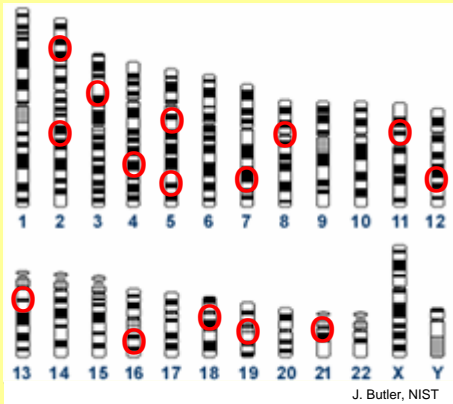
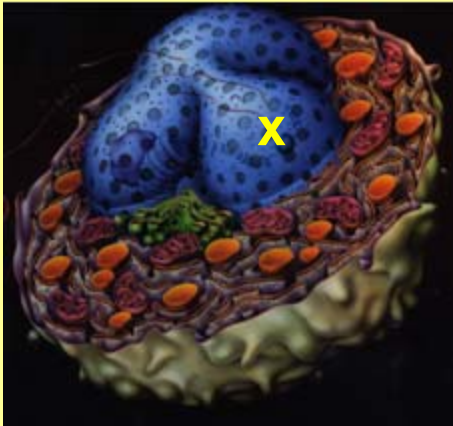
Y

STRs

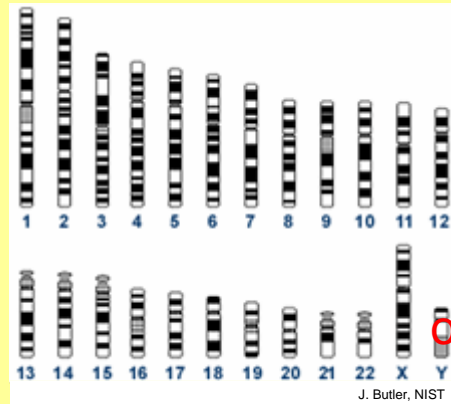
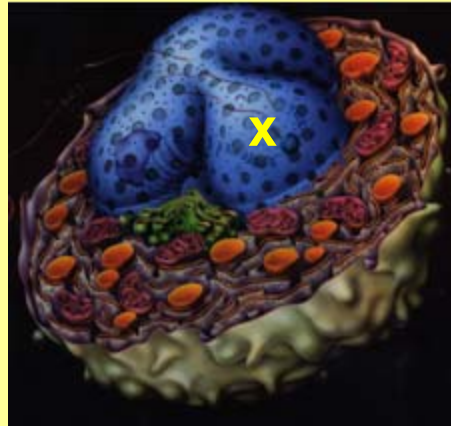
It's a fact:  
It is impossible that the „Fürstengruft“-skull  
belongs to  
Friedrich Schiller

# Good news: we identified the Friedrich-Schiller- Code

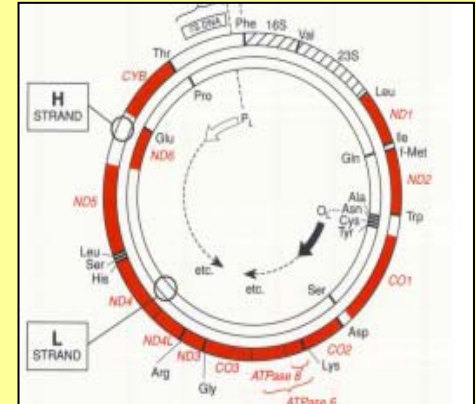
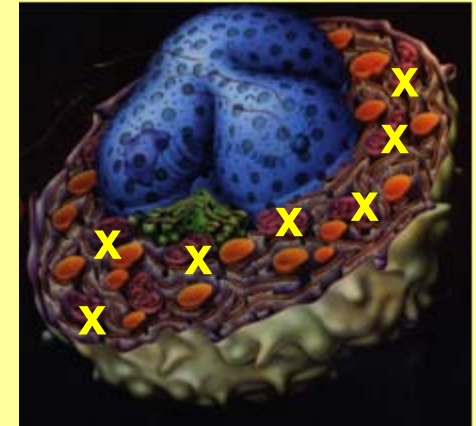
## STR



## Y-STR



## mtDNA



STR – Schiller - Code

Y – Schiller - Code

mtDNA – Schiller - Code

