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## REVITALIZATION OF MEDJIMURJE HORSE: MITOCHONDRIAL DNA EVIDENCE

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# Medjimurje horse

- ♦ Medimurje horse is autochthonous coldblood breed named after northern region of Croatia that is separated by two rivers Mura and Drava.
- ♦ The origin of the breed is linked to the Noric horse, Arab horse and cold blooded horses from Belgian, Croatia and Germany.
- ♦ **Medimurje horse** - funded by crossing of domestic local mares and stallions of Noric horse, Percheron, Arden and Brabant



# Medjimurje horse

- ♦ The history of this draft horse is linked to the Austro-Hungarian Empire where it was spread over the region that today is Austria, Croatia, Hungary and Slovenia.
- ♦ So, the breed is also recognized under names  
**Muraközi lo** (in Hungarian language),  
**Murinsulaner** (in German language),  
**Medjimurski konj** (in Croatian language).
- ♦ Today, there is only 38 horses registered as purebred and the breed is critically endangered in Croatia, while found in traces in Hungary and Slovenia.





# Austro-Hungarian empire

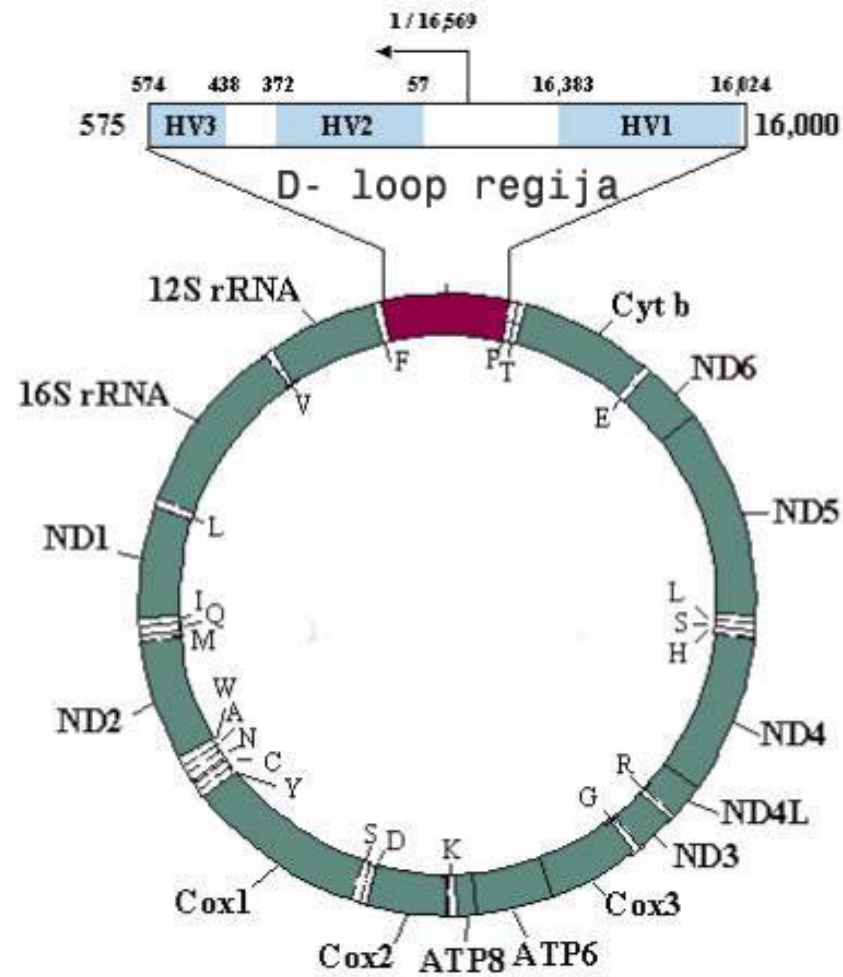


# Goals:

- ♦ As a part of revitalization plan of Medimurje horse, we have performed mtDNA analysis.
- ♦ Our goal was to establish maternal lines for future pedigree and mating policy as well as to compare maternal origin of Medjimurje horse with other neighboring horse breeds.

# MtDNA

Aberle et al. 2007, 1280bp



- We took samples from local population of Posavina horse (7), Croatian coldblood horse (8), Medjimurje horse (37) and from Hungary Muraközi lo (23), Noric horse from Austria (38), Traditional Arab horse from Bosnia (10) and Bosnian mountain horse (5).
- In the analyses we also included published sequences referred to the 610-bp fragment of mtDNA (see Aberle et al. 2007).



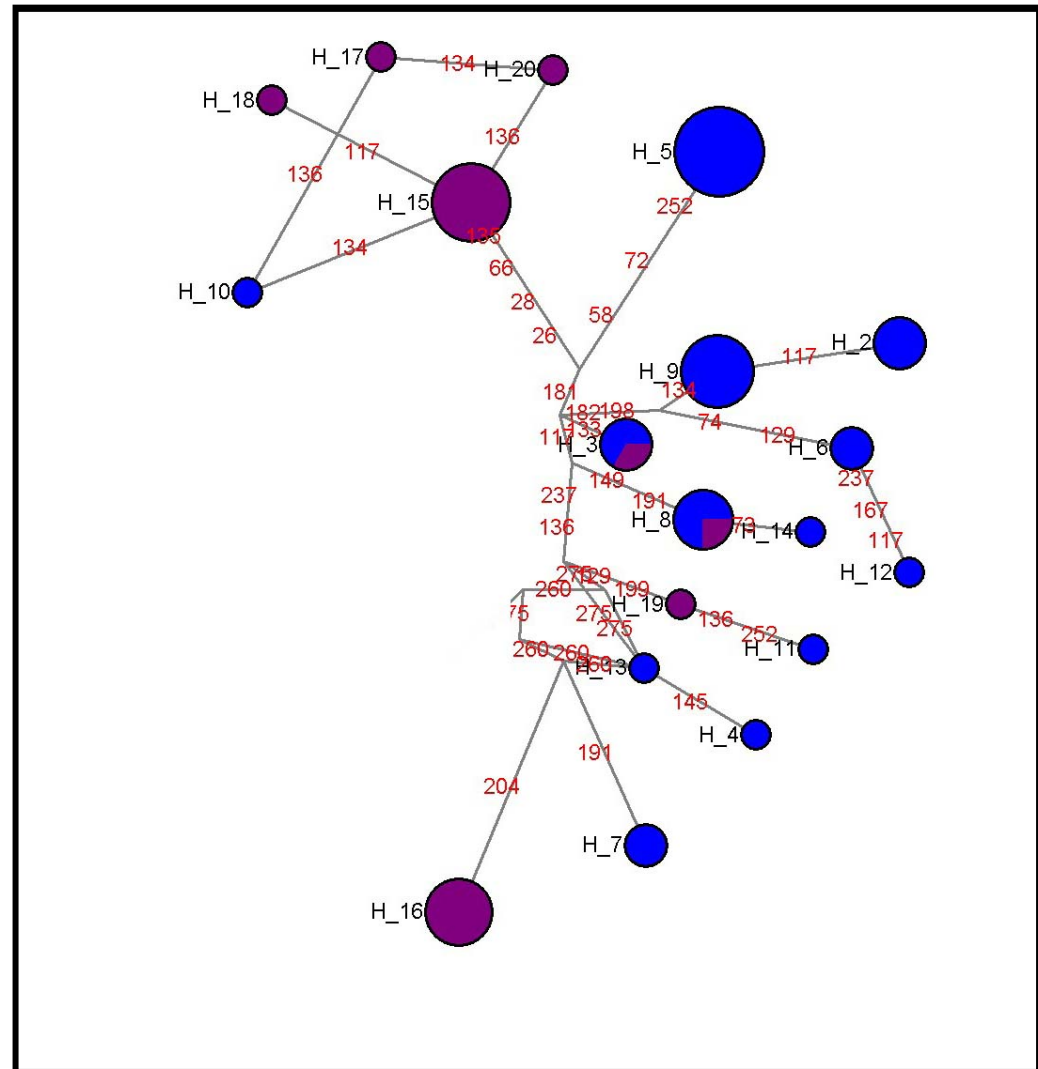
# Haplotypes of Medjimurje horse

20 haplotypes

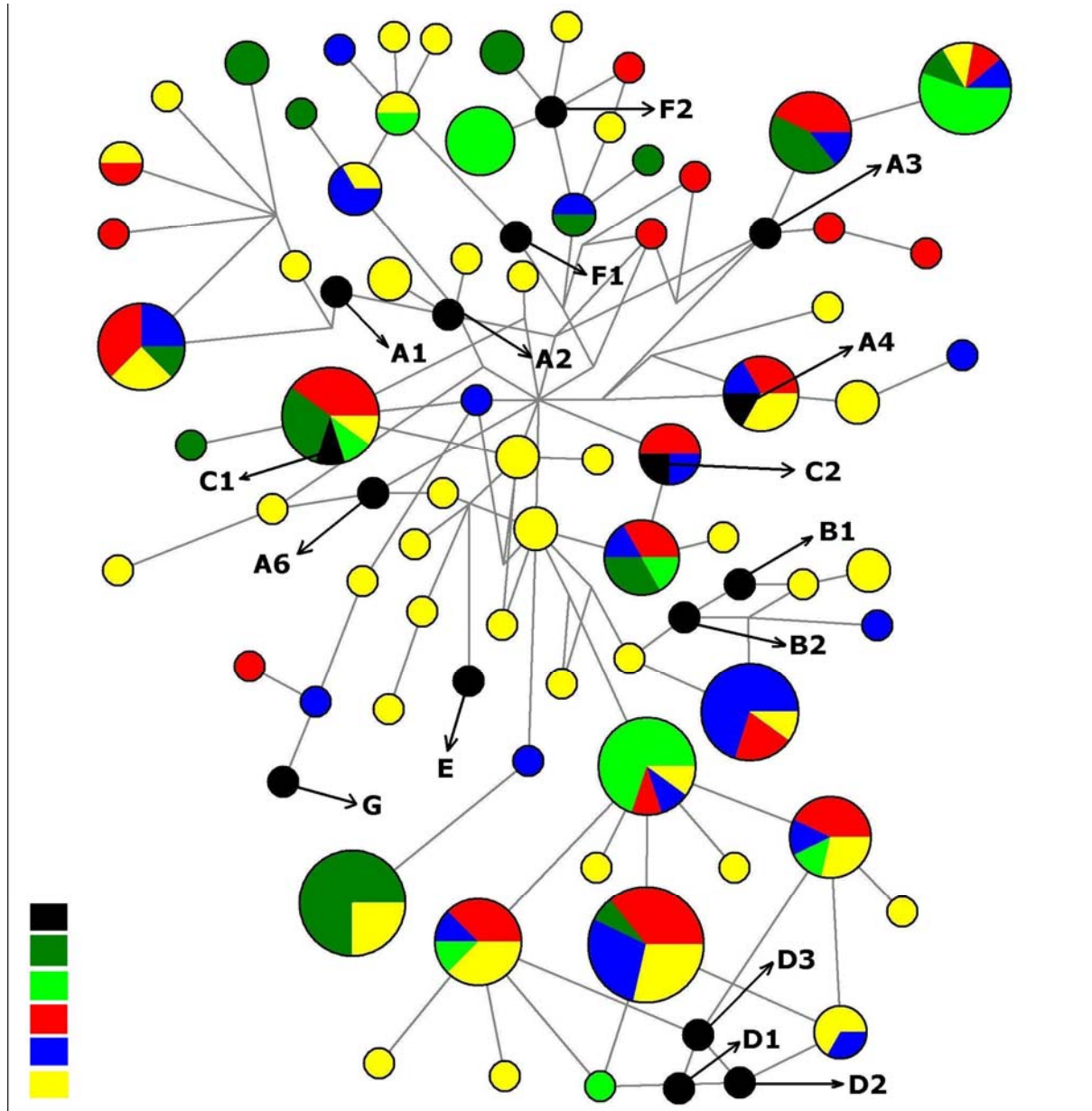
Haplotype 5-  
RH

Haplotype 15-  
HU

2 common  
haplotypes



# Maternal origin common to the large number of breeds



Basic haplogroups

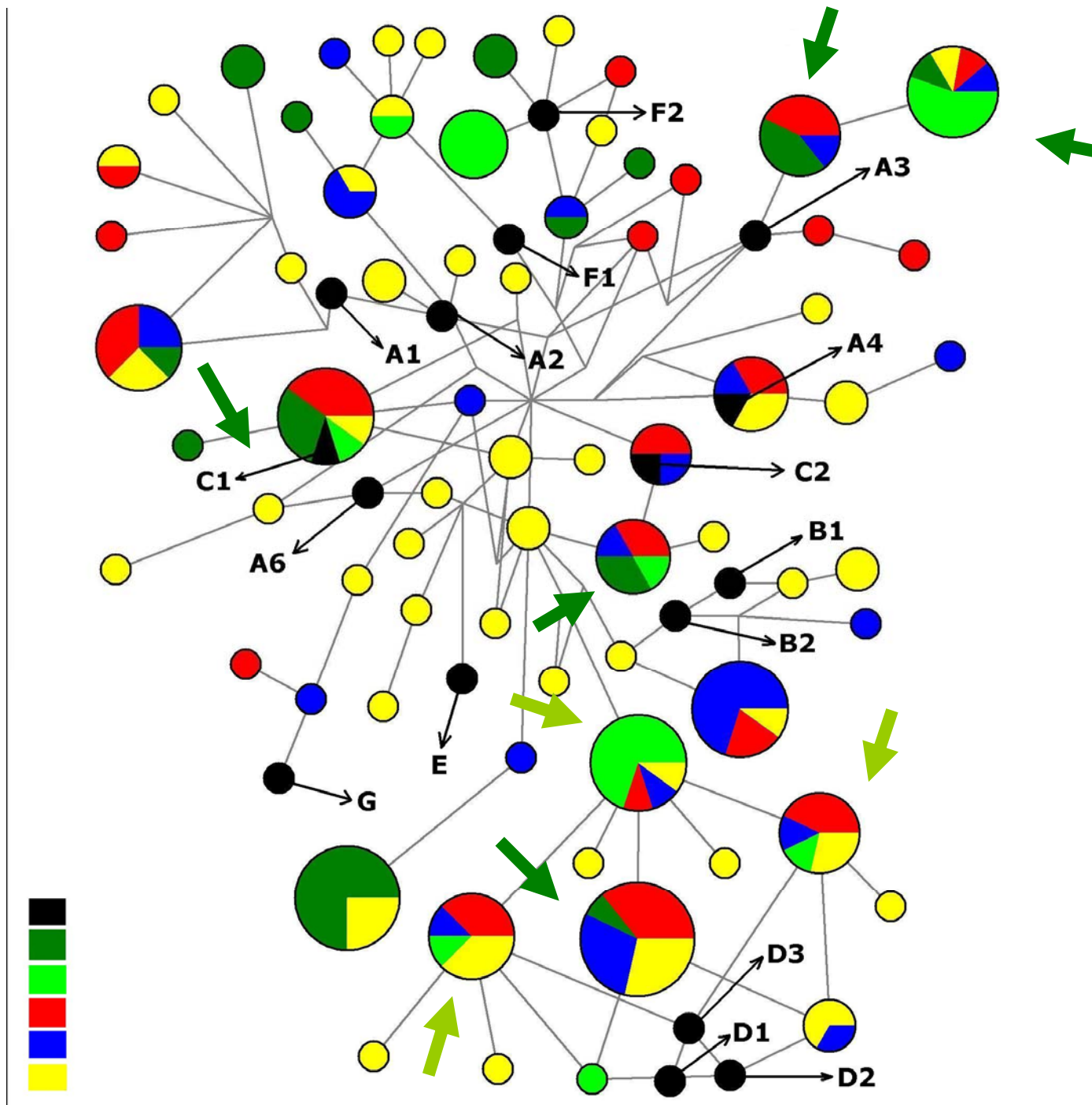
MH CRO

MH HUN

Noriker

Draft horses

Other breeds



Common  
& separate  
Haplotypes  
of  
MH CRO  
MH HUN  
Noriker

# Conclusion

- ♦ Only for Croatian and Hungarian samples related to Medjimurje horse, we found 20 different mtDNA haplotypes arising from 32 variable sites. Common haplotypes and "mutational vicinity" of large number of haplotypes indicated closeness of Croatian and Hungarian populations of Medjimurje (Muraközi) horse.
- ♦ 2 common haplotypes
- ♦ Medjimurje horse-heterogenic population



◆ Future research: 'sloprog' -  
bones





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