The archaeogenetic analysis of Neolithic swine remains in the Romanian territory

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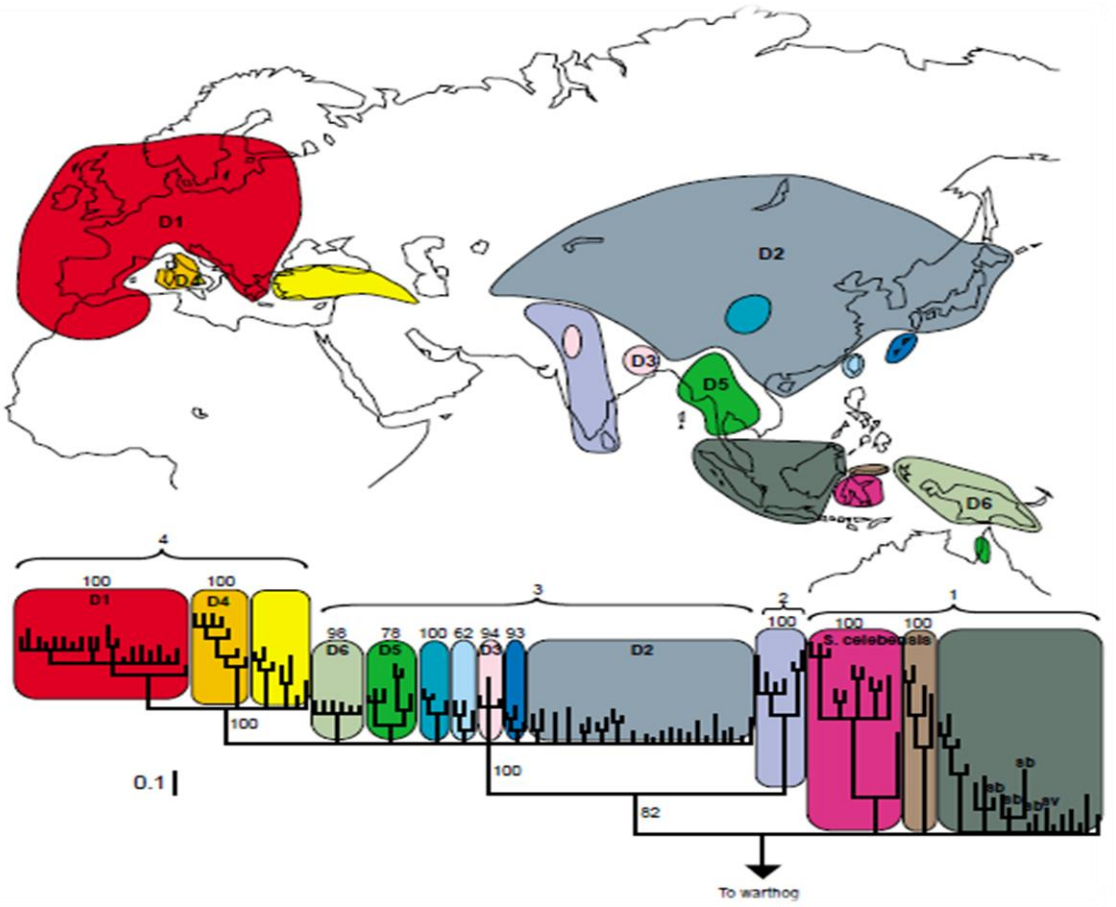
The main domestication centers for *Sus scrofa* in the world

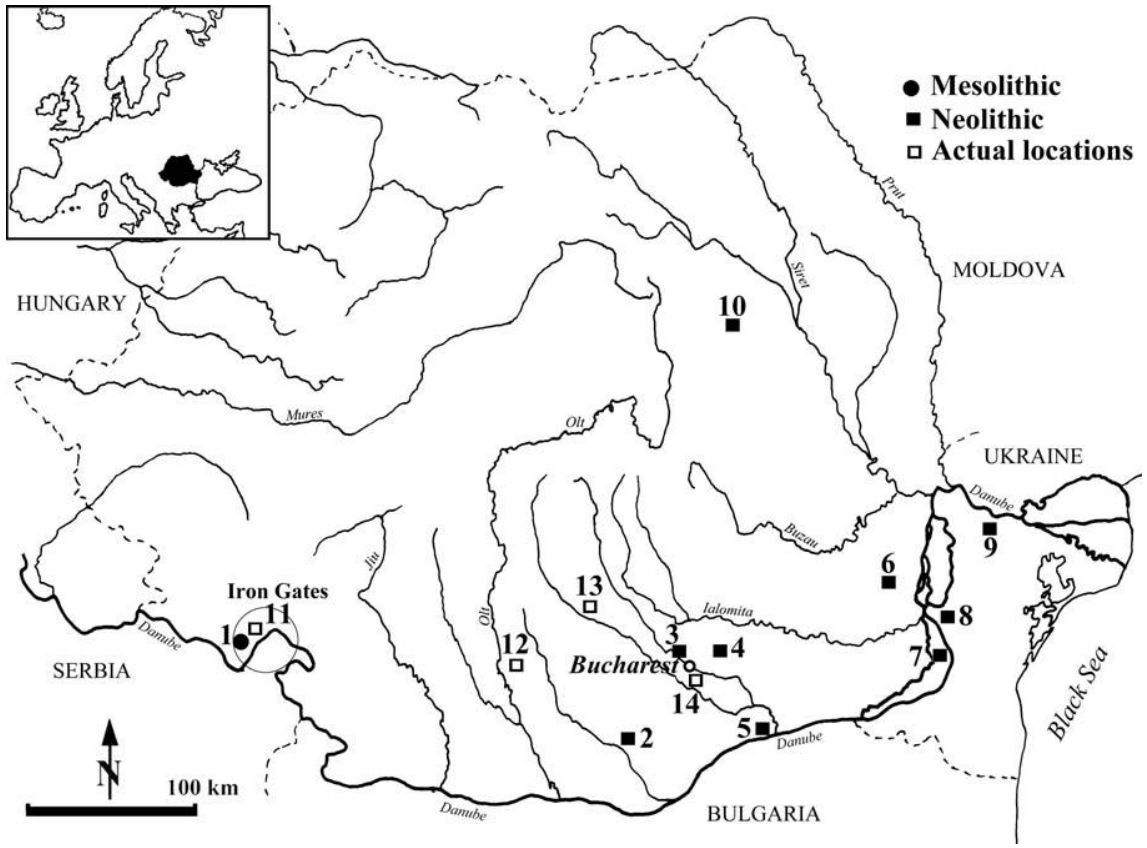
- D1-D6 – main domestication centers in the world;
- Each colour – a different cluster;
- All braches represent *Sus scrofa sp*, except the ones already named: *Sus celebensis*, *Sus barbatus*, *Sus verrucosus*



(Larson et al., 2005)

Domestic pig on Romanian territory, archaeogenetic results obtained so far

- ❖Mesolithic: wild boars with european haplotype;
- ❖Neolithic : wild boars with european haplotype and domestic pigs with Near-Eastern haplotype;
- ❖Actual locations: wild boars with european haplotype, identical with the Mesolithic one;



(Bălășescu et al., 2006)

To investigate the origin and spread of the domestic pig on Romanian territory

- **To identify the genetic signature for the analysed samples;**
- **To correlate the morphometric and genetic data;**
- **To discuss the results and make the inferences according to the time and space dimentions**

Matherial and methods

Bone remains fragments of Sus scrofa/Sus domesticus

- ❖Mandible;
- ❖Maxilla;
- ❖Isolated teeth;
- ❖Frontal bone;
- ❖Parietal bone
- ❖Scapula;
- ❖Humerus;
- ❖Cubitus;
- ❖Metacarpal;
- ❖Falangae
- ❖Coxae;
- ❖Tibia;
- ❖Calcaneus;
- ❖Femur;

❖DNA extraction

❖ PCR

❖Sequencing

❖Sequences analysis and haplotypes identification

Matherial and methods

D-loop → 123 base pairs fragments → SNPs

ANC-Cside

ANC-Aside

ANC-Italy

Ancient European haploypes

ANC-Y1-5A

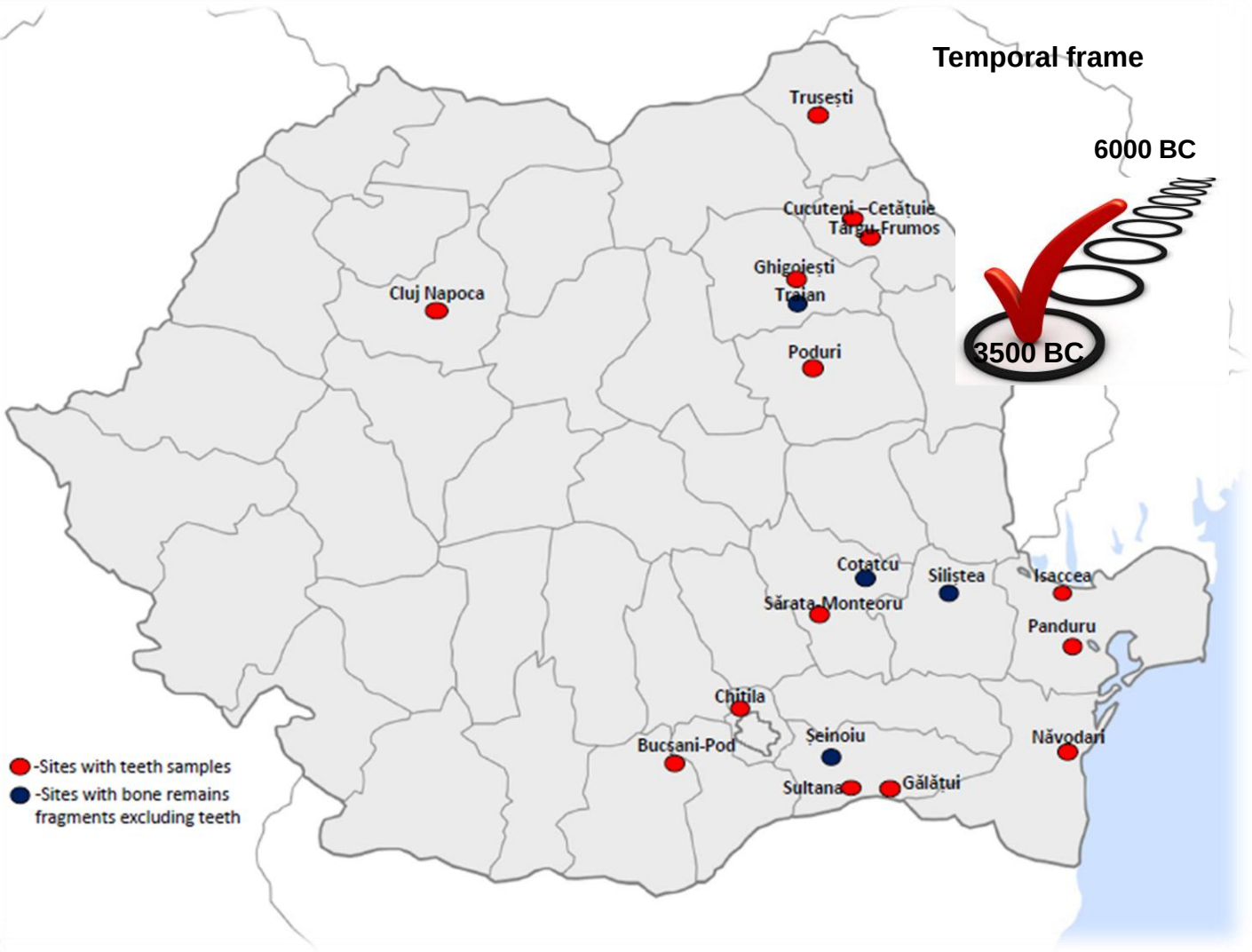
ANC-Y2-6A

ANC-ARM1T

ANC-ARM2T

Ancient Near-Eastern haplotypes

The archaeologic sites where the samples were collected from



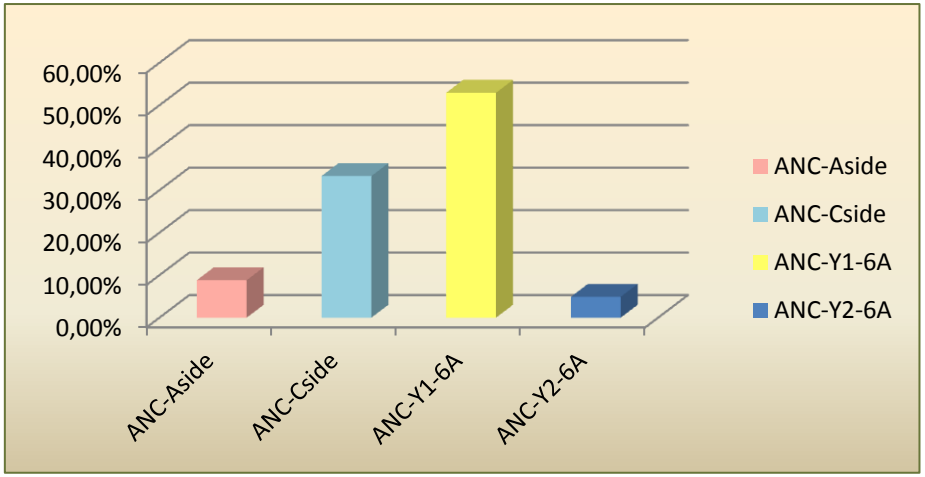
Results

ANC-Cside

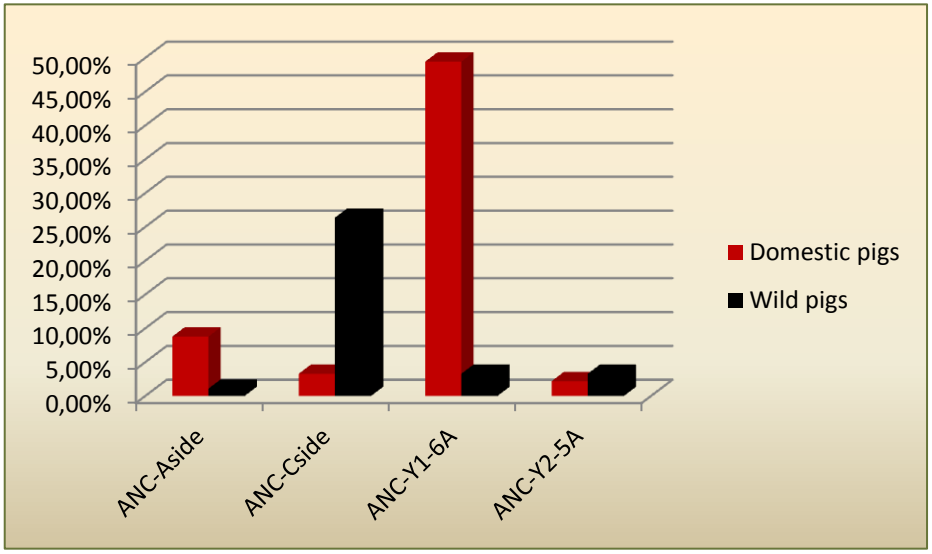
ANC-Aside

ANC-Y1-5A

ANC-Y2-6A

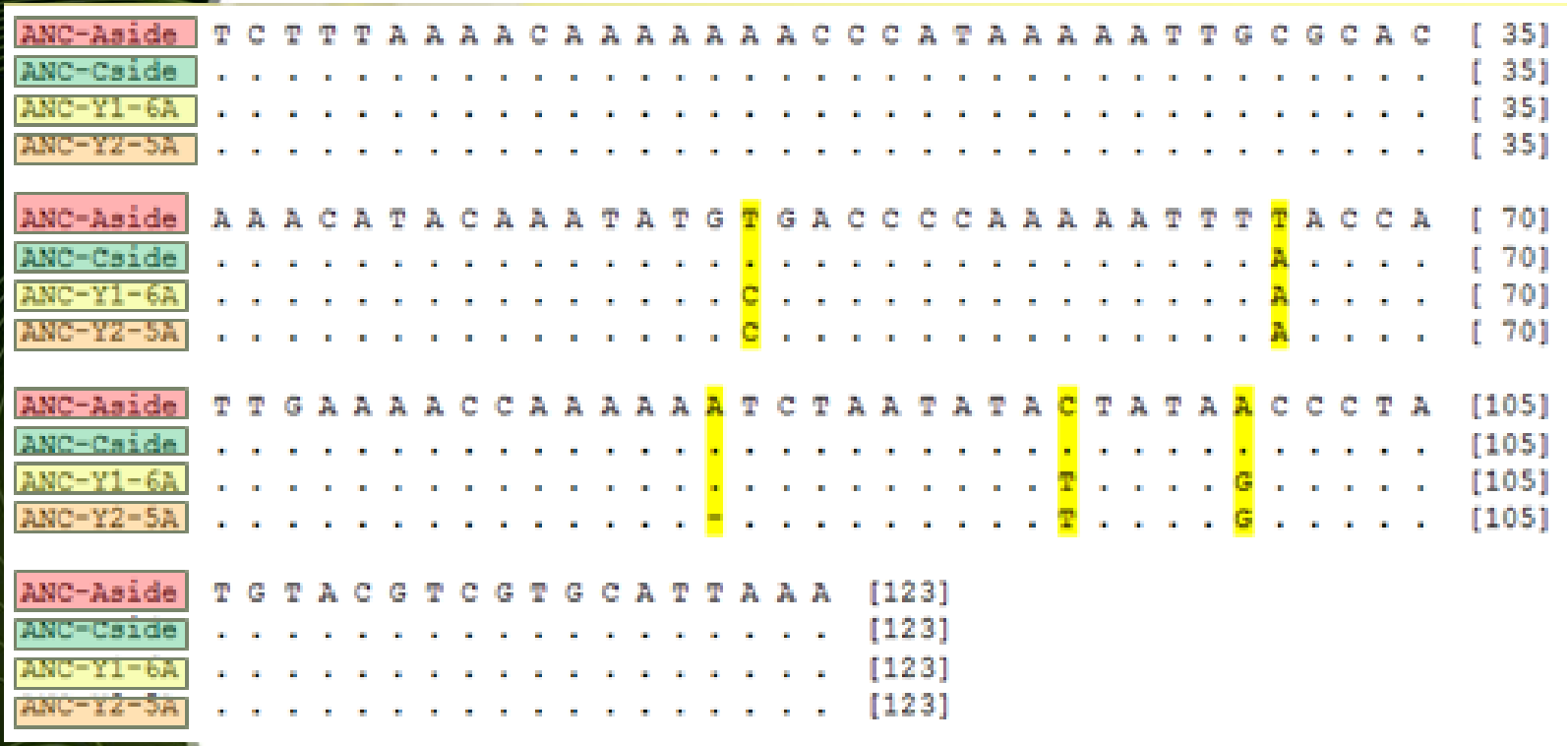


Haplotypes frequency among all analysed individuals



Percentage of domestic pigs and wild boars within each haplotype

Results



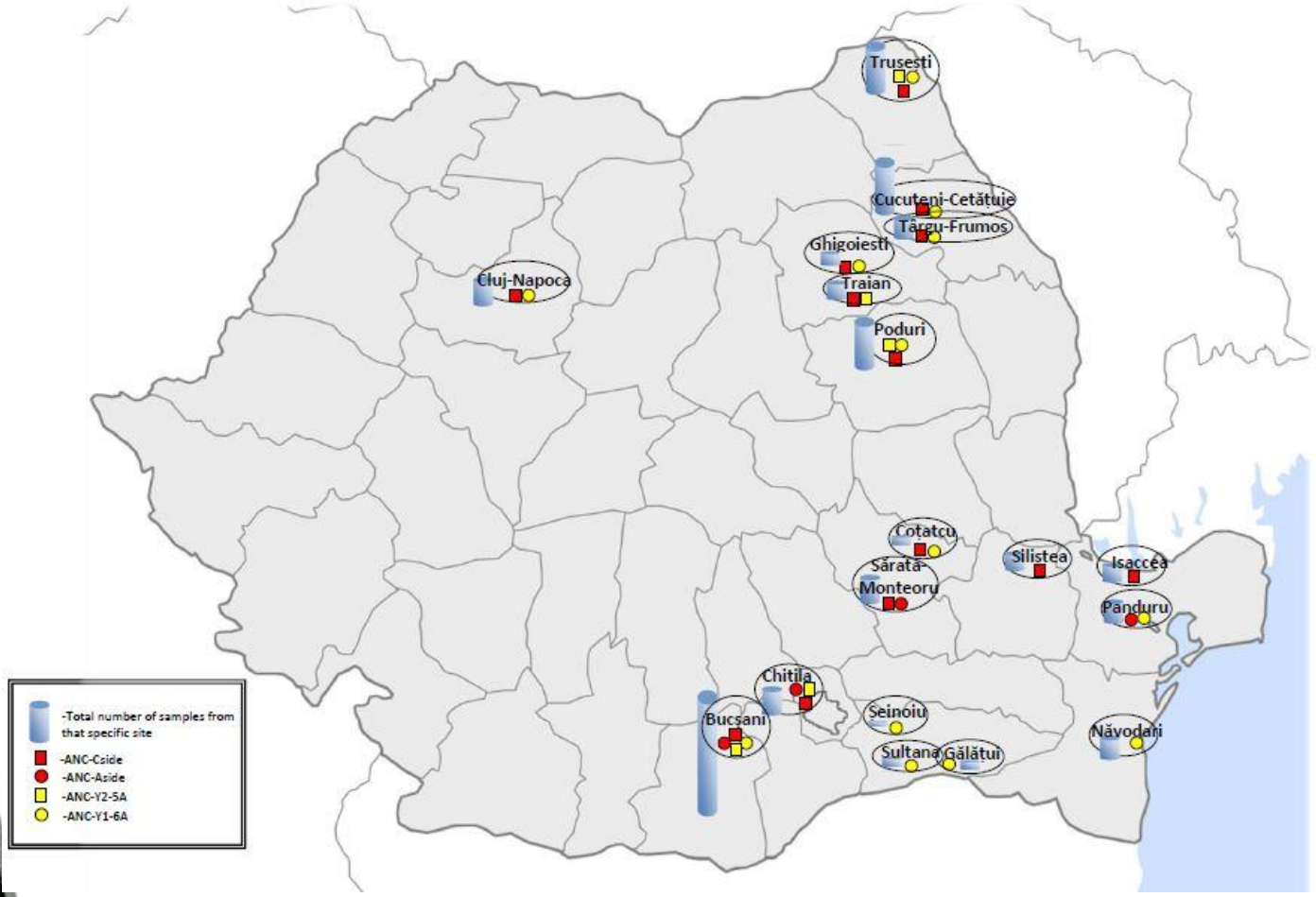
A total of 5 mutations between the 4 ancient haplotypes

Differences between European and Near-Eastern haplotypes : three transitions

Particular mutations:

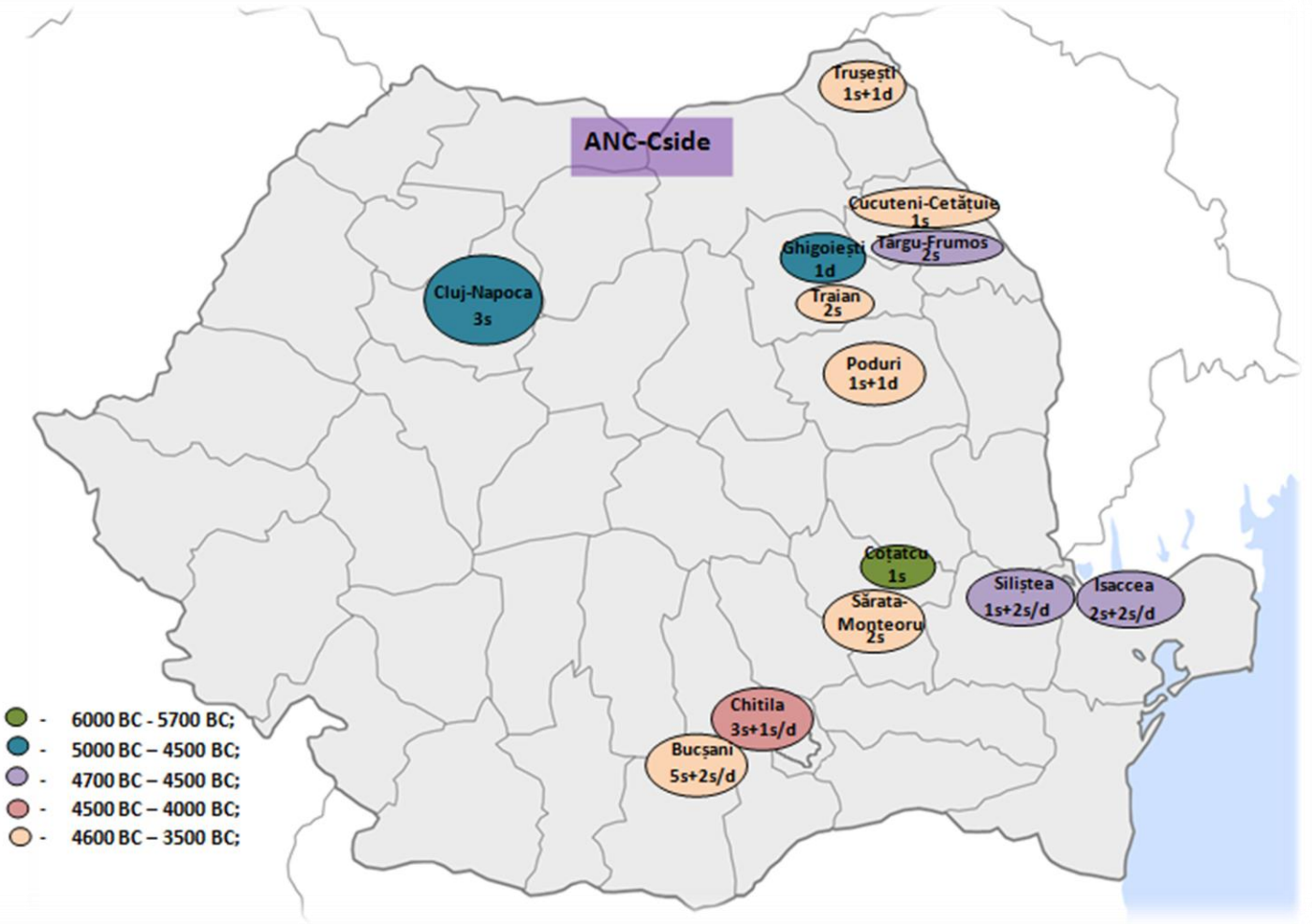
- **one transversion for the European ANC-Aside haplotype;**
- **one deletion for the Near-Eastern ANC-Y2-5A haplotype**

The spread of all haplotypes on Romanian territory and the number of samples from each site

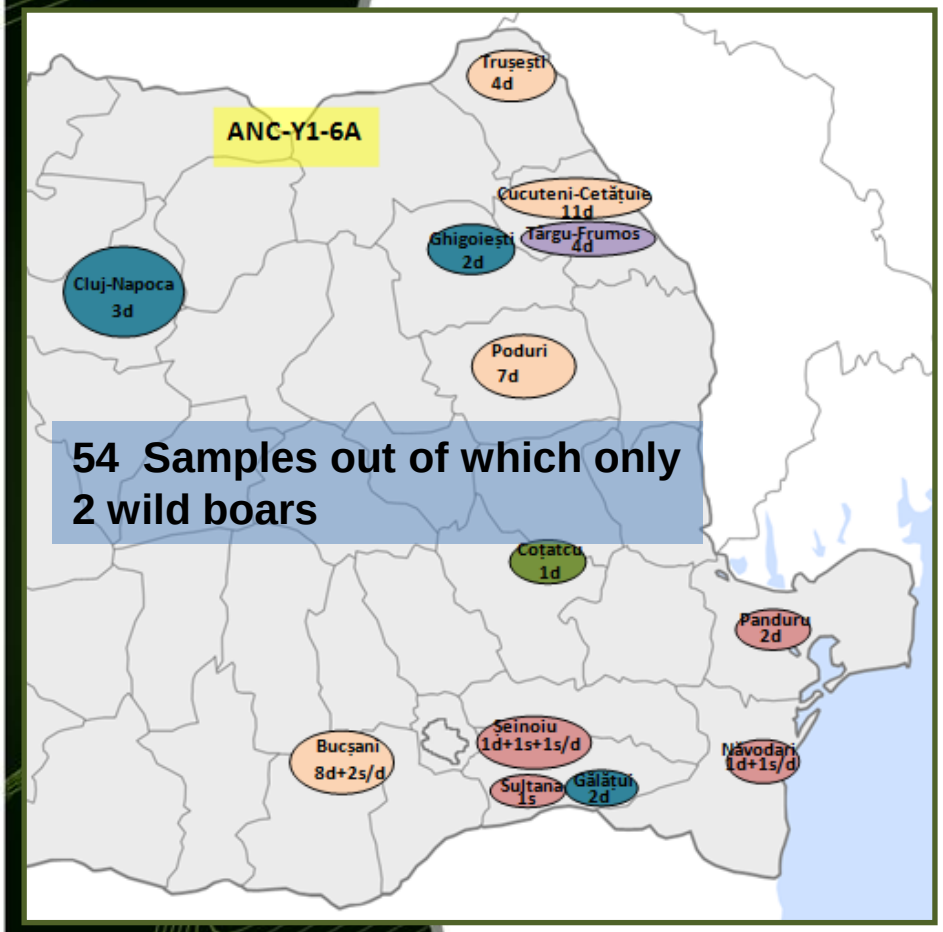


Ways of the emergence of domestic pigs on Romanian territory

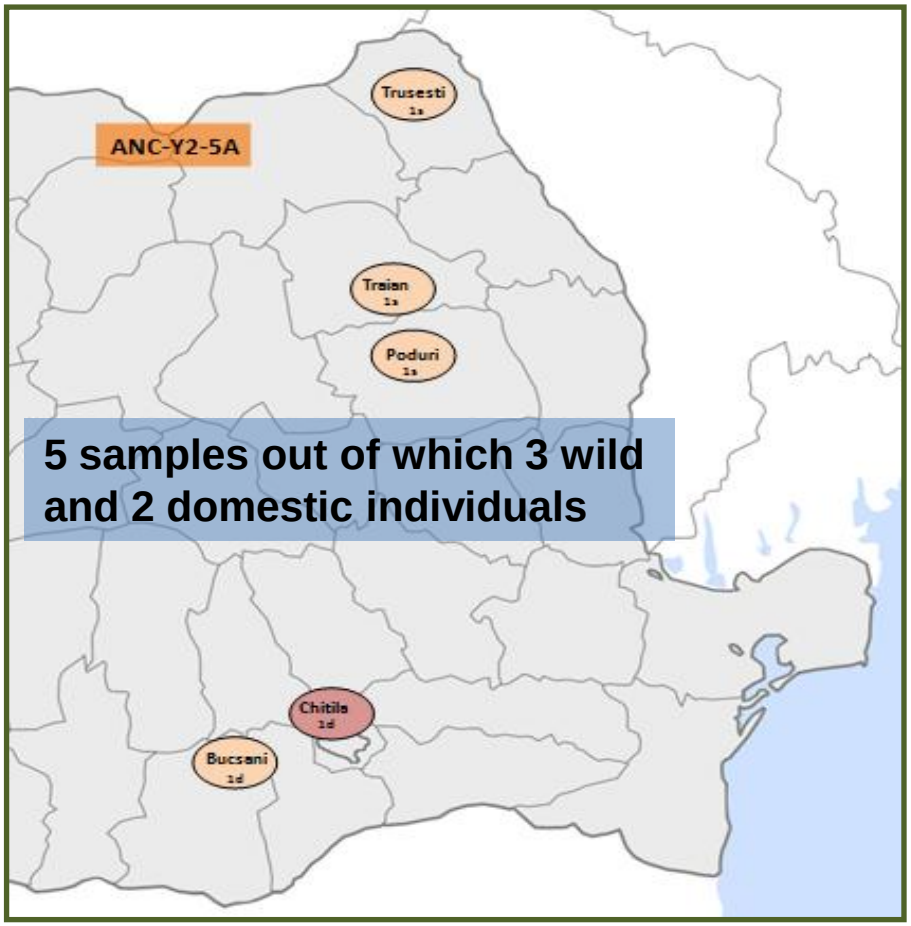
1 **The introgression of the native wild stock into the imported domestic one**



The spread of the two Near-Eastern haplotype on Romanian territory between 3500-6000 BC



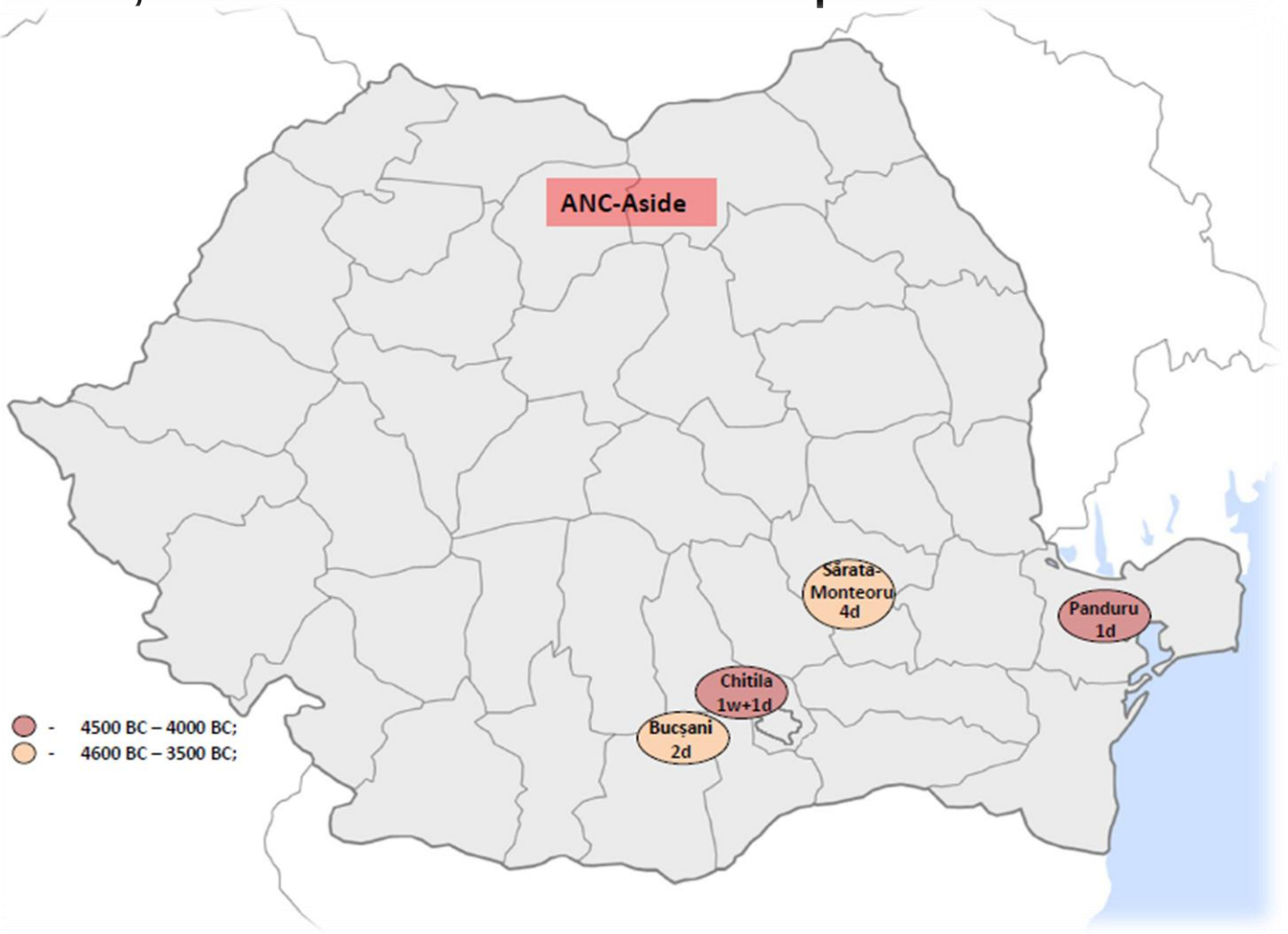
Temporal frame: 6000-3500 BC



Temporal frame: 4500-3500 BC

Ways of the emergence of domestic pigs on Romanian territory

2 **The importation of domestic pigs not only from the Near-East, but also from the Western Europe?**



Conclusions

1. The presence of the ANC-Aside haplotype in almost only domestic pigs on Romanian territory rises question marks related to its origin and spread as for the timing of this process.

2. Further analysis have to be carried out for a better understanding of the spread of ANC-Y2-5A haplotype, also originary from the Near-East, but very rare on Romanian territory, although equaly represented by the domestic and wild boars too.

Thank you for your attention!