

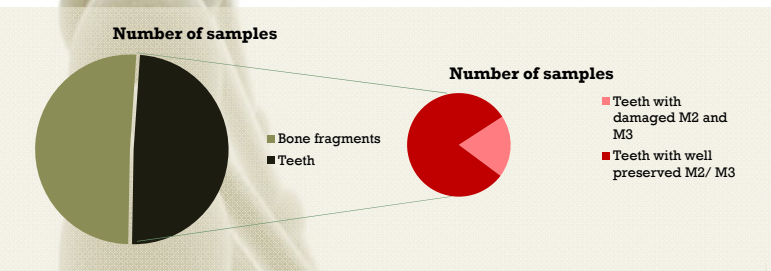
The genetic signature of domestic pig in the south-eastern part of the Romanian territory during the Neolithic revealed by ancient mitochondrial DNA

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Pigs are among the most investigated domestic animals due to their significant economical value and the origin of pig domestication goes back in the past for about 10.000 years, in the Near East and Anatolia. Due to its geographical position, Romanian territory represented a gate for the European neolithization.

How did domestication occurred in Europe is still a subject of debate.

Previous studies carried out on samples from Romanian territory showed the introduction of the Near-Eastern domestic pigs as early as 5500 BC and their later continuity through the Neolithic, until Chalcolithic. By the beginning of the fourth millennium BC the European haplotypes started to replace the Near-Eastern ones in Europe. To investigate further how this happened on Romanian territories, a new set of 63 samples from 11 different sites were analyzed, spanning a large period of time: 6000-3700 BC.



Material and methods

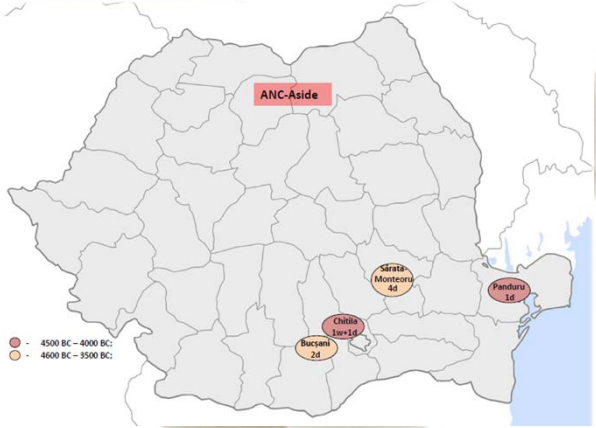
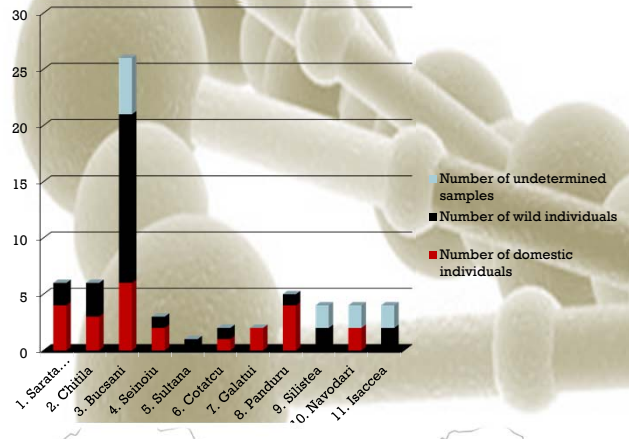
The samples consisted in bones or teeth which were subjected to extraction procedures typical for ancient DNA. The DNA was further amplified by PCR procedures, and sequenced.

The target was a 123 bp fragment from the control region.

For a better identification of the wild/domestic status, the big number of teeth samples with well preserved M2 and M3 allowed the use of geometric morphometrics apart from the traditional metrical approach.

Results

Morphometric results



DNA results

The success rate was quite high, of about 96%, showing a very good preservation of the remains.

ANC-Aside	T C T T T A A A A C A A A A A A C C C A T A A A A A T T G C G C A C	[35]
ANC-Cside	. . . . .	[ 35]
ANC-Y1-6A	. . . . .	[ 35]
ANC-Y2-5A	. . . . .	[ 35]
ANC-Aside	A A A C A T A C A A A T A T G G G A C C C C A A A A T T T A A C C A	[70]
ANC-Cside	. . . . .	[ 70]
ANC-Y1-6A	. . . . .	[ 70]
ANC-Y2-5A	. . . . .	[ 70]
ANC-Aside	T T G A A A R C C A A A A A T C T A A T A T A G T A T A A C C C T A	[105]
ANC-Cside	. . . . .	[105]
ANC-Y1-6A	. . . . .	[105]
ANC-Y2-5A	. . . . .	[105]
ANC-Aside	T G T A C G T C G T G C A T T A A A	[123]
ANC-Cside	. . . . .	[123]
ANC-Y1-6A	. . . . .	[123]
ANC-Y2-5A	. . . . .	[123]

For the ANC-Aside haplotype, we can see that wild individuals are nearly absent on Romanian territory during the Chalcolithic period, while the domestic ones can be found in more than one archaeological site.

This data rises new question marks about the origin and spread of European haplotypes in Europe, apart from the ones introduces from the Near-East.