

Área Científica **Melhoramento de Plantas**

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**Título** HDI - Domesticação do Cavalo na Ibéria - O que mais há por descobrir?

**Programa**

FCT

**Medida**

Projetos de I&D em todos os Domínios Científicos

**Instituição Líder** Fundação da Faculdade de Ciências

**Investigador Responsável INIAV** Ana Elisabete Godinho Pires

**Orçamento Total** 101 160,00€

**Orçamento INIAV** 0,00€

**Parceria**

FFC	Fundação da Faculdade de Ciências	Nacional
IGESPAR, IP	Instituto de Gestão do Património Arquitectónico e Arqueológico, IP	Nacional
INIAV	Instituto Nacional de Investigação Agrária e Veterinária, I.P.	Nacional
UCDavis	University of California at Davis	EUA
FFL/UL	Facultad de Filosofía y Letras, Universidad de León, Espanha	Espanha
McDI	McDonald Institute for Archaeological Research, University of Cambridge	UK

**Equipa**

Ana Elisabete Pires

## Resumo

Horse domestication has long been a subject of intensive research. In the last decade, with the emergence of ancient DNA (aDNA) analysis and its comparison with modern DNA, there has been an even more lively discussion on this subject. One of the major issues has been the possibility of an independent horse domestication event in the Iberian Peninsula. Despite all the studies made so far several questions still remain open or need clarification, such as:

1. Did an independent domestication event occur in the Iberian Peninsula and/or in North Africa?
2. Is there any evidence for the migration of horses between North Africa and Iberia before the Moorish invasion in 711 AD? If so, what was the direction of that migration?
3. Are there clear genetic evidences that the pool of horses that remained in the south of the Iberian Peninsula during the last glaciations influenced other European horses subsequently?

The most recent studies that analysed mitochondrial DNA in ancient zooarchaeological samples covering the Mesolithic - Medieval periods, indicate a lack of evidence for an independent domestication of the horse in the Iberian Peninsula, and provide instead strong evidence for introgression of local mares. These studies are with no doubt important, however their main weakness is the lack of an extensive set of samples from the Iberian Peninsula, especially from the south, where the horses are thought to have persisted even during the last Ice Age. North Africa is considered a crucial region that should be taken into account in order to clarify the horse domestication issue in Iberia. In fact there are historical indications for an exchange of horses that occurred between these two regions. However, none of the most recent studies on horse domestication have used samples from this North Africa.

We therefore intend to study the mtDNA of a large set of ancient Iberian samples (we gathered, so far, around 100 samples), representing a wide temporal scale, from the Palaeolithic to the Medieval times. This proposal also intends to analyse horse remains excavated at North African archaeological sites. A large set of modern samples from these two regions will also be collected and analysed for mtDNA and microsatellites.

The identification of the genetic basis for phenotypic variation can add a new dimension to the investigation of horse evolution in Iberia, as it will allow tracing selection and the spread of economically important genes. We will perform the analysis of coat colour nuclear markers (SNPs) both in archaeological and modern Iberian and North African horse samples. A comparison will be made with the coat colour variation of modern horses from Eurasia. This analysis will allow a temporal and geographic analysis of horse coat colour variation to help clarifying the horse domestication process at a local scale, i.e in Iberia, and the possible influence of the horses from this region on other European breeds.

The morphometrics of zooarchaeological remains as well as the genetic variation at SNPs associated to coat colour will be investigated on the same archaeological samples. We expect to provide crucial information for a better understanding of past practices of animal breeding and selection in the Iberian Peninsula and North Africa.

We specifically aim to:

- Fill the gap in the analysis of archaeological horse remains from southern Iberia and North Africa and from the Palaeolithic to the Medieval times;
- Evaluate the extent, and variation across time, of horse coat colour in those geographic regions and understand its evolution;
- Look for evidences for selective breeding in ancient bone samples;
- Determine the sex ratio of the ancient samples through osteometry and genetic analysis.