

PhD fellow in Ancient DNA and Horse Evolutionary Genomics

Applications are invited for a three-year PhD fellowship in the field of Ancient DNA and Horse Evolutionary Genomics. The research program will be developed within the framework of the PEGASUS ERC (<http://orlandoludovic.wixsite.com/pegasus-erc>), led by Professor Ludovic Orlando. It will be carried out in the new research Centre called AGES (Archeology, Genomics, Evolution and Societies) that he recently developed in France (<http://amis.cnrs.fr/?Archeology-Genomics-Evolution-and-Societies-AGES>) at the University of Toulouse (<http://www.univ-tlse3.fr/home/home-page-en-379161.kjsp?RH=ACCUEIL>). Research at AGES is aimed at tracking the impact of the many ecological, societal and cultural transitions present in our recent evolutionary past using a true multi-disciplinary approach, merging together classical archaeological and historical approaches with the latest advances in molecular and statistical genomics. Animal domestication, especially that of the horse, represents one of such historical turning points.

Project The project will focus on analyzing an extensive dataset of (ancient) horse genomes and epigenomes recently produced in the group to identify the prehistorical and historical modifications underlying the origins of the modern horse. It follows up on our recent publications demonstrating that modern domestic horses descend from a domestication wave that replaced in the 3rd millennium BCE the horse stock that was previously domesticated in the Eneolithic period (Librado et al. Science 2017; Gaunitz et al. Science 2018). Identifying the exact geographical and temporal locus of this mysterious second domestication centre represents one of the core objectives of the project. In addition to cover the key transitional period represented by the 3rd mill. BCE, our current dataset includes a series of archaeological contexts within the last 4,000 years where key equestrian technologies and novel utilizations of the horse have emerged. It also largely extends our current knowledge of the worldwide diversity present in modern horses. The principal supervisor is Professor Dr Ludovic Orlando (<http://amis.cnrs.fr/?Orlando-Ludovic>).

We are seeking a highly motivated, hard-working and productive student who is interested and capable of interacting and contributing to a research team consisting of archaeologists, molecular biologists, bioinformaticians, and evolutionary biologists. The ideal candidate will have a background in statistical genomics and/or population genomics and will show proficiency with Bash and other programming languages such as R, Perl and/or Python. S/he will be an experienced user of state-of-the-art packages aimed at the analysis of genome-scale sequence data for several hundreds of individual genomes (eg. Samtools, GATK, Picard, PLINK, ANGSD, Admixtools, etc). S/he will show great abilities to work in an international environment and will be familiar with the molecular methods underlying genome sequencing. International experience and first-hand experience in the analysis of ancient DNA and/or High-Throughput DNA Sequencing data will be considered positively.

Job description The PhD student will be expected to:

- Manage and carry through his/her research project
- Take PhD courses
- Write scientific articles as well as the PhD thesis
- Participate in scientific meetings
- Contribute to other research activities in the group
- Disseminate research

Opportunities for teaching might open in case of interest but will not be compulsory.

Key assessment criteria

- A master's degree related to the subject area of the project, at the time of the employment.
- The grade point average achieved
- Professional qualifications relevant to the PhD program

- Previous publications
- Relevant work experience
- Other professional activities
- Language skills (the applicant must be fluent in English, which is the language at AGES)

Application Procedure

The application will be sent electronically to Ludovic Orlando (ludovic.orlando@univ-tlse3.fr) and must include:

- Curriculum vitae (with publication record, if any)
- Diplomas and transcripts of records (BSc and MSc)
- Motivation letter
- Contact details from two references
- Documentation of English language qualifications, cf. general rules and guidelines, p. 5

The University wishes our staff to reflect the diversity of society and thus welcomes applications from all qualified candidates regardless of personal background. Proficiency in communicating in English is compulsory.

Review of applications will begin June 1st 2018 and will continue until the ideal candidate is identified. **The appointment is expected to start no later than 1st October 2018.**