

## PhD fellowship in Palaeoproteomics at the Universitat Pompeu Fabra (UPF) and Institut Català de Paleontologia Miquel Crisafont (ICP)

We are recruiting candidates for a PhD position in Palaeoproteomics, starting September 1<sup>st</sup>, 2020 or as soon as possible thereafter. The position is part of the European Training Network “PUSHH: Palaeoproteomics to Unleash Studies on Human History” [www.pushh-etn.eu](http://www.pushh-etn.eu), funded by the European Union’s Horizon 2020 Research and Innovation Programme under the Marie Skłodowska-Curie grant agreement No 861389.

### About PUSHH

The PUSHH ETN builds on the recent exciting advances in “palaeoproteomics”, i.e. mass spectrometry-based ancient protein sequencing. PUSHH will develop new proteomic methods, optimised for ancient protein analysis, that will be applied to address outstanding evolutionary questions in human and hominoid evolution. Currently, there are very few specialists that have been trained to analyse ancient proteins, but the growing demand for information provided by palaeoproteomics will require highly qualified profiles with backgrounds in analytical chemistry, bioinformatics, palaeoanthropology and palaeontology. PUSHH will fill this advanced training gap by providing international, and intersectoral doctoral (PhD) training, for 14 Early Stage Researchers (ESRs) in seven different EU countries. PUSHH will guide the ESRs to develop the advanced interdisciplinary competence they need to achieve seamless integration of palaeoproteomics with the established research approaches currently used in palaeoanthropology and archaeology.

Read more about the network at: [www.pushh-etn.eu](http://www.pushh-etn.eu).

### Our group and research

The successful applicant will be part of the Comparative Genomics (CG) Group at the Universitat Pompeu Fabra. The CG Group is a major international player in the use of genomics to retrieve population characteristics of primates (<https://www.nature.com/articles/nature12228>; <https://science.sciencemag.org/content/354/6311/477>). We also characterized the paleo proteomics of the extinct *Gigantopithecus* being able to reconstruct their phylogeny in comparison to other apes (<https://www.nature.com/articles/s41586-019-1728-8>). In the last few years, the research activity pursued in the CG Group significantly contributed to the understanding of genomics in evolution and conservation and he is granted an ERC Consolidator Grant starting on 2020.

The successful applicant will also be affiliated to the Paleobiodiversity & Phylogeny Research Group at the Institut Català de Paleontologia Miquel Crisafont (ICP; [www.icp.cat](http://www.icp.cat)), which is a partner organization of the PUSHH consortium, and will perform the secondment there. The ICP hosts an important collection of Miocene primates from NE Iberia, including the holotypes of multiple hominoid genera described by its researchers, such as *Pierolapithecus catalaunicus* (<https://doi.org/10.1126/science.1103094>) and *Pliobates cataloniae* (<https://doi.org/10.1126/science.aab2625>).

## Project description

### Molecular-Based Phylogeny of the Hominoids from the Vallès-Penedès Basin (ESR1)

Extensive samplings and excavations during many decades in the Vallès-Penedès Basin (NE Spain) have led to a vast collection of fossil vertebrate remains, including Miocene hominoids, now curated at the Museum of the Institut Català de Paleontologia Miquel Crusafont in Sabadell. Most noteworthy are the partial skeletons of the fossil apes: *Pierolapithecus catalaunicus* (12.0 Ma), *Hispanopithecus laietanus* (9.6 Ma), and *Pliobates cataloniae* (11.6 Ma). The former two, included in the extinct subfamily Dryopithecinae, are generally interpreted as stem great apes preceding the divergence between pongines (orangutans) and hominins (African apes and humans), with *Pierolapithecus* being the oldest unambiguous documented occurrence of an orthograde bodyplan (characteristic of extant apes) in the fossil record. However, uncertainties persist regarding their phylogenetic status, with some researchers advocating instead for closer phylogenetic relationship with either hominines or pongines. In turn, *Pliobates* has been interpreted as a stem hominoid preceding the divergence between lesser and great apes, although alternate interpretations (stem catarrhine, stem hylobatid) cannot be confidently ruled out. The primary goal of this high risk-high gain PhD would be to clarify the phylogenetic position of the aforementioned taxa. As a backup plan and in parallel, we will be exploiting other, more recent Plio-Pleistocene primate fossils (New World Monkeys and Old World Monkeys) to clarify their phylogenetic relationships.

**Principal supervisor** is Full Professor Tomas Marques Bonet, UPF, [tomas.marques@upf.edu](mailto:tomas.marques@upf.edu)

**Co- supervisor** is David M.Alba, ICP

**Start:** September 1<sup>st</sup> 2020, or as soon as possible thereafter

**Duration:** 3 years (36 months) as a PhD candidate

## Job description

Your key tasks as a PhD student at UPF are:

- Carry through an independent research project under supervision
- Complete PhD courses corresponding to approx. 30 ECTS points
- Participate in active research environments including a stay at another research team
- Obtain experience with dissemination activities related to your PhD project
- Write a PhD thesis on the grounds of your project

As an Early Stage Researcher within the PUSHH network you are also expected to:

- Actively attend all the mandatory network-wide PUSHH activities, which will take place in multiple locations in and outside Europe
- Travel for a mandatory secondment period (research stay) at another institution within the PUSHH consortium. Actively take part in the research projects involving multiple institutions and ESRs within the PUSHH network

- Deliver scientific articles and/or book chapters in collaboration with other PUSHH ESRs and supervisors
- Communicate your scientific activity to a broad audience, for example through outreach activities, public lectures, podcasts, and social media
- Comply with the highest standards of research integrity, as set out in the European Code of Conduct for Research Integrity  
[https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics\\_code-of-conduct\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf).

### Eligibility criteria

To be eligible for a PhD position in PUSHH, on 1<sup>st</sup> September 2020, you must:

- have not resided or carried out your main activity (work, studies, etc.) in Spain for more than 12 months since 1<sup>st</sup> August 2017. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status under the Geneva Convention are not taken into account.
- be in the first four years (full-time equivalent research experience) of your research career, and have not been awarded a doctoral degree. Full-time equivalent research experience is measured from the date when you obtained the first degree entitling you to embark on a doctorate (either in the country in which the degree was obtained or in the country in which the researcher is recruited), even if a doctorate was never started or envisaged.
- meet the legal requirements to be enrolled in the PhD program at the UPF.  
([https://www.upf.edu/web/doctorats/1\\_requisits](https://www.upf.edu/web/doctorats/1_requisits))

### Key criteria for the assessment of applicants

Applicants must have qualifications corresponding to a master's degree related to the subject area of the project, e.g. molecular biology, evolutionary biology, computer science, palaeontology or similar discipline.

### Other important criteria are:

- The grade point average achieved
- Professional qualifications relevant to the PhD project
- Previous publications
- Relevant work experience
- Other professional activities
- Curious mind-set with a strong interest in human evolution, proteomics, ancient biomolecules and bioinformatics
- Demonstrated proficiency in both written and spoken English
- Demonstrated knowledge on programming and/or basic evolutionary biology.
- Experience in processing and interpreting genomic data for phylogenetic inference and/or population genomics reconstructions.

- Ability to write, with a high level of independence, scientific manuscripts, reporting the original results generated, for publication on the most prestigious peer-reviewed journals,
- Ability to comfortably work, both independently and as a team member, in a highly interdisciplinary environment with colleagues with different scientific backgrounds.

**Desirable criteria are:**

- Advanced experience in implementing and optimizing palaeoproteomics methods is a valued plus.
- Experience in human and/or primate population genomic inferences is a valued plus.
- Demonstrated experience in development and delivery of public outreach initiatives is a valued plus.
- Advanced computational skills for command line-based manipulation and statistical analysis of large genomic/proteomic datasets on large computational infrastructures is a valued plus.

**Place of employment**

The CG Group is located at the Evolutionary Biology Unit of the Pompeu Fabra University (<http://www.upf.edu>) and is part of the Barcelona Biomedical Research Park (<http://www.prbb.org>), a renowned centre for Biomedical research that hosts, besides the University, other institutions such as the CRG (Centre for Genomic Regulation) or the EMBL Barcelona. All these organizations share a thrilling and dynamic scientific atmosphere, driven by leading groups in fields such as bioinformatics, molecular biology and evolution. The PRBB is located close to Barcelona's City Centre (right in front of the beach).

The ICP is a public research institute that belongs to CERCA Institution (Research Centers of Catalonia) and is mainly devoted to research in vertebrate paleontology. It is linked to the Universitat Autònoma de Barcelona (UAB) and funded by the Generalitat de Catalunya. ICP researchers have different academic backgrounds (geology, biology...) and specialties, but they all follow a paleobiological approach deeply entrenched in life sciences that ultimately aims to contribute to our current understanding evolution based on the information provided by the fossil record.

**Terms of employment**

The employment as PhD fellow is full time and for 3 years.

It is conditioned upon the applicant's successful enrolment as a PhD student at the Department of Health and Experimental Sciences (DCEXS), Universitat Pompeu Fabra. This requires submission and acceptance of an application for the specific project formulated by the applicant.

**Questions**

For specific information about the PhD fellowship, please contact the principal supervisor.

General information about PhD study at the UPF is available at the Graduate School's website:

<https://www.upf.edu/web/phd-biomedicine>

### **Application procedure**

Your application must be submitted electronically by clicking 'Apply now' below. The application must include the following documents in PDF format:

1. Motivated letter of application (max. one page)
2. CV incl. education, experience, language skills and other skills relevant for the position
3. Master of Science diploma and transcript of records. If not completed, a certified/signed copy of a recent transcript of records or a written statement from the institution or supervisor will do

### **Application deadline: [June 2020]**

We reserve the right not to consider material received after the deadline, and not to consider applications that do not live up to the abovementioned requirements.

### **The further process**

After the expiry of the deadline for applications, the authorized recruitment manager selects applicants for assessment on the advice of the hiring committee. All applicants are then immediately notified whether their application has been passed for assessment by an unbiased assessor. Interviews are expected to be held. The assessor makes a non-prioritized assessment of the academic qualifications and experience with respect to the above-mentioned area of research, techniques, skills and other requirements listed in the advertisement.