

PhD fellowship Mar Albà's group at Hospital del Mar Research Institute

Application period: 1-22 Oct 2026

The Hospital del Mar Research Institute (HMRIB) is a biomedical research institute in Barcelona, Spain, and part of the CERCA network of Catalan research centers, with research spanning cancer, genomics, evolutionary biology, and computational biology.

We have an opening for a PhD fellowship as part of the EU doctoral network ORFeus (Decoding the Dark Proteome). Information on ORFeus: <https://www.orfeus-dn.eu/>

You will enroll as a PhD candidate at Universitat Pompeu Fabra (UPF), the degree-awarding partner of the Hospital del Mar Research Institute.

Project description

Only a fraction of the genome codes for the proteins in standard reference catalogs. Many small open reading frames (smORFs) are translated into microproteins that those catalogs miss, but which of these recently evolved microproteins actually carry out a biological function remains largely unknown. Evolutionary signatures, such as how strongly a sequence is conserved or constrained across species and within human populations, offer one of the few ways to tell a functional microprotein from a spurious translation product.

The PhD student will develop computational models to predict microprotein functionality by integrating ribosome profiling data, phylostratigraphy (evolutionary age estimates), and genetic constraint data from public resources such as gnomAD and UK Biobank. Sequences with signatures of purifying selection will be prioritized for validation studies using CRISPR-Cas9 functional screens in collaboration with other groups in the network. The evolution of microproteins throughout time will be investigated to discern if they have particular modes of evolution, both regarding sequence and structure, when compared to standard proteins.

MSCA eligibility

You must meet all of the following on your recruitment date:

- You do not already hold a doctoral degree. If you have defended a doctoral thesis but the degree has not yet been formally awarded, you are not eligible.
- Mobility rule: you must not have lived or carried out your main activity (work, studies, and so on) in Spain for more than 12 months in the 36 months immediately before your recruitment date. Compulsory national service, short stays such as holidays, and time spent in a procedure to obtain refugee status under the Geneva Convention do not count toward the 12 months.

- You hold, or will hold before the start date, a degree that formally entitles you to enroll in a doctorate, and you can enroll in the doctoral program at the Hospital del Mar Research Institute / Universitat Pompeu Fabra (UPF).
- Candidates of any nationality may apply. There is no limit on prior research experience, as long as you do not already hold a doctorate.

Project-specific profile

- A master's degree (or equivalent) in bioinformatics, computational biology, genetics or a related quantitative or life-science field.
- Strong programming and data-analysis skills (for example Python or R) and an interest in evolutionary genomics and the analysis of large biological datasets.
- Desirable: experience with comparative or evolutionary genomics, ribosome profiling or next-generation sequencing data, population genetic variant data (for example gnomAD or UK Biobank), functional screenings, and an interest in microproteins and the dark proteome.
- Good written and spoken English.
- Motivation for interdisciplinary, collaborative research, and willingness to travel for the secondment and network events.

What we offer

- A full-time employment contract for 36 months as a salaried researcher, with full social security coverage, under the rules of the Marie Skłodowska-Curie Actions. This is a paid employment contract, not a stipend or scholarship.
- The salary has a living allowance and a mobility allowance, plus a family allowance if you have family obligations when you are recruited. The indicative gross salary for this position is 2,749.48 euros [per month (plus 509.22 euros mobility allowance, and 473.36 family allowance if eligible). This is what you are paid before income tax and your own social-security contributions are deducted.
- A secondment of around three months with an ORFeus industry partner (EIRNABIO, Ireland). You will also attend network-wide schools, workshops, and international conferences.

How to apply

All ORFeus positions use one central hiring platform, linked from the project website; you do not apply to the host institution directly. You submit up to three individual applications and thereby rank up to three of the 15 ORFeus projects in order of preference (this position is DC8). You are considered by every project you rank, not only your first choice.

Platform link: <https://www.orfeus-dn.eu/apply/>

The application uses structured, criteria-based questions. You will provide:

- Answers to a few eligibility questions, so we can confirm you meet the MSCA rules.
- A checklist of the techniques used in the projects you rank, with a short line of evidence for each technique you have used.
- A short motivation for each project you choose, explaining your interest in it and in ORFeus.
- A curriculum vitae.
- Optionally, a short video introduction. This is not required and you will not be disadvantaged if you do not include one.
- Contact details for two academic referees. We ask your referees for letters directly, and only if you are shortlisted for interview, so you do not need to arrange letters when you apply.

Applications open on 1 October 2026 and close on Thursday 22 October 2026, 23:59 CET. We will assess every application against the weighted ORFeus criteria: academic excellence (40%), research potential and motivation (30%), communication (20%), and international experience (10%). Shortlisted candidates have a short introductory call, then a formal interview with both academic supervisors. Every applicant is told the outcome, and shortlisted and interviewed candidates receive feedback. Recruitment is open, transparent, and merit-based, with attention to gender balance.

The successful candidate ideally starts on 1 March 2027, and no later than 1 May 2027 if the host institution's start dates require it.