BIOMEDICAL SCIENCE FOR THE BENEFIT OF SOCIETY

"Postdoctoral scientist, gut microbiome, host genetics and emergent phenotypes"
Centre for Genomic Regulation (CRG)

The Institute

The Centre for Genomic Regulation (CRG) is an international biomedical research institute of excellence, based in Barcelona, Spain, with more than 400 scientists from 44 countries. The CRG is composed by an interdisciplinary, motivated and creative scientific team which is supported both by a flexible and efficient administration and by high-end and innovative technologies.

In April 2021, the Centre for Genomic Regulation (CRG) received the renewal of the 'HR Excellence in Research' Award from the European Commission. This is a recognition of the Institute's commitment to developing an HR Strategy for Researchers, designed to bring the practices and procedures in line with the principles of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (Charter and Code).

Please, check out our Recruitment Policy

The role

We are seeking a postdoctoral scientist deeply interested in investigating how host and gut microbiome interact, at the molecular and at the organismal levels. Our lab is continuously generating large-scale, state-of-the-art gut metagenomics data for thousands of genetically heterogeneous "HS" laboratory rats whose genetic makeup, gut metabolome and behaviour have been characterised by collaborators. We are looking for a postdoctoral scientist to exploit these data in creative and rigorous ways. A first step will be to construct a catalogue of metagenome-assembled genomes (MAGs) for the HS rat population, from very deep shotgun and long read sequencing data.

The ideal candidate will have proven experience constructing a MAG catalogue and analysing microbiome deep shotgun data to profile the microbiome at the taxonomic and functional levels in hundreds/thousands of individuals. They will have a good understanding of the gut microbiome field and will be able to identify novel and/or important questions to address with our HS rat data. They will be keen to interact with other team members, including PhD students and bioinformaticians working on the gut microbiome and host genetics.

About the team

The Social and Host-Microbiome Systems lab aims to expand our understanding of the genetic basis of complex traits to encompass genes found in the environment: genes of social partners and genes of the gut microbiota.
Most relevant publication for this project:
- Novel insights into the genetic architecture and mechanisms of host/microbiome interactions from a multi-cohort analysis of outbred laboratory rats. Tonnele, Chen et al. bioRxiv (2025) (accepted for publication in Nature Communications). This study was based on 16S data but we now use only deep shotgun sequencing data to profile the microbiome.

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Our team is multidisciplinary, with expertise in quantitative/statistical genetics (e.g. heritability, GWAS, indirect/social genetic effects) and metagenomics (microbiome profiling using deep shotgun sequencing data, detecting horizontal transmission). We are mostly computational but have a small lab component and work in close collaboration with the CRG core units for metagenome sequencing. We have a long-standing collaboration with the NIDA Center of Excellence for Genetics, Genomics, and Epigenetics of Substance Use Disorders in Outbred Rats (https://ratgenes.org/).

Whom would we like to hire?

Professional experience

Must Have

- You have proven experience reconstructing MAGs from deep shotun sequencing data and, ideally, long read sequencing data as well.
- You have proven advanced knowledge on host-gut microbiome ecosystems
- You have proven experience turning newly generated MAGs into new biological insights
- You have expertise in high-performance computing environments
- You have proven programming competence in R and/or Python

Desirable but not required/ Nice to have

- You have proven experience profiling the microbiome at the taxonomic and functional levels using shotgun sequencing data (not 16S data)
- You have first-hand experience writing paper(s)
- Experience with Nextflow
- You have proven experience applying statistical methods to large datasets
- Experience with host quantitative/statistical genetics (heritability, GWAS…)

Education and training

- You hold a PhD in metagenomics

Languages

- You are fluent in English

Competences

- Structured reasoning skills and attention to details, allowing you to carry out rigorous science
- Ability to progressively develop a strategy to extract novelty from the data and your results
- Organizational skills to manage multitasking (reading the literature, analysing data, preparing meetings, meeting deadlines…)
- Ability to communicate effectively in meetings
- Desire and ability to work collaboratively within a multidisciplinary team (PhD students, bioinformaticians, lab technicians)

The Offer – Working Conditions

- **Contract duration:** 3 years
- **Estimated annual gross salary:** Salary is commensurate with qualifications and consistent with our pay scales
- **Target start date:** December 2025 (but it could be earlier or later); applications will be reviewed and processed on a rolling basis.

We provide a highly stimulating environment with state-of-the-art infrastructures, and unique professional career development opportunities. To check out our training and development portfolio, please visit our website in the training section.

We offer and **promote a diverse and inclusive environment** and welcomes applicants regardless of age, disability, gender, nationality, ethnicity, religion, sexual orientation or gender identity.

The **CRG is committed to reconcile a work and family life** of its employees and are offering extended vacation period and the possibility to benefit from flexible working hours.

Application Procedure

All applications must include:
1. A motivation letter addressed to Dr Amelie Baud.
2. A complete CV including contact details.
3. Contact details of two referees.

All applications must be addressed to Dr. Amelie Baud and be submitted online on the CRG Career site - http://www.crg.eu/en/content/careers/job-opportunities

Selection Process

- **Pre-selection**: The pre-selection process will be based on qualifications and expertise reflected in the candidate's motivation letter and CV. It will be merit-based.

- **Interview**: Preselected candidates will be interviewed by Dr Amelie Baud and at least one other Group Leader. Meetings will be organised with team members as well.

- **Offer Letter**: Once the successful candidate is identified the People department will send a Job Offer, specifying the start day, salary, working conditions, among other important details.

Deadline: The position will remain open until it's covered.

Suggestions: The CRG believes in **ongoing improvement** and promotes a **culture of feedback**. This is one of the reasons we have in place, at your disposal as a candidate, a mechanism to gather your suggestions/complaints concerning your candidate experience in our recruitment processes. Your feedback really matters to us in our aim at creating a **positive candidate journey**. You can make a difference and help us improve by letting us know your suggestions through the following form.