# Position Description

## 1. General information

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| Position reference | IDIBGI-PF1: Computational Discovery of Mechanisms Linking Metabolism, Inflammation, and the Gut–Brain Axis |
| Research area | Computational and integrative approaches to metabolism and inflammation, encompassing multi-omics data analysis and inter-organ communication. |
| Research fields | Bioinformatics and Computational Biology; Metabolic Diseases; Neurobiology and Neuro-metabolism; Immunometabolism Microbiome and Gut–Brain Axis; Multi-omics Integration |
| Supervisors | • José Manuel Fernández-Real (IDIBGI)<br>• Barbora de Courten (RMIT) |
| Available research capabilities | The Nutrition, Eumetabolism, and Health (NEH) Group) offers access to human cohorts (IRONMET, IRONMET+CGM, IRONmiRNA, METASUCC, GMBCROSSTALKFOOD, POINSETTIA).<br>In addition, the NEH group counts with excellent research facilities:<br>• IDIBGI Biobank: It is the support platform for research responsible for the management of human biological samples and associated data for research. The Biobank comprises: The Central node, which integrates blood-derived samples and other fluids (urine, stool, etc.), and the Tumour Bank node, which includes samples of tumour tissue.<br>• Experimental Laboratory: the laboratory includes research facilities for molecular biology, enabling comprehensive miRNA analysis with equipment such as thermal cyclers, spectrophotometers, and automated genetic analysers.<br>• Drosophila "Fly Room" IDIBGI facility: The *Drosophila* laboratory is a fully equipped research facility designed for high-throughput host-microbiome interaction studies and behavioural assays in *Drosophila melanogaster*.<br>• The IDIBGI Ageing Program: Cross-cutting institutional program integrating two population-based cohorts to study aging and health across the life course, with clinical, biological, lifestyle, imaging, and omics data from over 3,800 participants in the Girona region.<br>• Training and Mentoring Resources. The NEH group boasts extensive and proven experience in fostering scientific talent, demonstrating a clear multiplier effect in the research community. |
| Find out more about the research groups | • https://idibgi.org/en/grups/nes-nutricio-eumetabolisme-i-salut/ |
| Employing entity | IDIBGI |
| Seconding entity | RMIT |
| Position funded by | • COFUND, Marie Sklodowska-Curie Actions (MSCA), Horizon Europe, European Union<br>• Institut d'Investigació Biomèdica de Girona Dr. Josep Trueta (IDIBGI)<br>• RMIT University (RMIT) |
| Foreseen start date | January 2027 |
| Gross annual salary | 34,800 EUR plus complements defined below |

# 2. Expected Candidate Profile

Education and Background:

- PhD degree in a relevant quantitative discipline such as Bioinformatics, Statistics, Mathematics, Data Engineering, or Biomedical Engineering.
- Prior training or a Master's degree in Omics Data Analysis, Bioinformatics, or Computational Biology is highly desirable.

Technical and Methodological Expertise:

- Excellent background and demonstrable expertise in Systems Biology and Metabolism.
- Proven experience in analysing large-scale omics datasets (metabolomics, transcriptomics, and metagenomics) and their multimodal data integration.
- Advanced practical knowledge of statistical and programming packages is mandatory, including R, Python, and/or SQL.
- Extensive experience with advanced statistical techniques and algorithms, such as Machine Learning, Cluster Analysis, Survival Analysis, and Pattern Recognition Methods (e.g., for microbiome compositional data analysis).
- Familiarity with neuroimaging and computational tools like MATLAB, SPM, and FSL is a strong asset, given the focus on the Gut-Brain Axis. Ability to formulate experimental objectives and hypotheses and appropriately test them using sound statistical techniques.
- Relevant research experience in the project's thematic area will be highly valued.

Soft Skills and Dissemination:

- Proven capacity for both team-oriented and independent work.
- Strong communicative skills and ability to effectively integrate and synthesize complex scientific information.
- Extensive experience in academic writing, demonstrated by a track record of peer-reviewed publications (high impact factor) and presentations at international scientific congresses.
- Demonstrated experience working effectively in multidisciplinary research teams.
- Language Proficiency: Advanced level of English is mandatory. Native proficiency in Catalan and/or Spanish is highly desirable.

# 3. Employment Conditions

The Girona Biomedical Research Institute Dr. Josep Trueta (IDIBGI) offers a 36-month (3-year) postdoctoral full employment contract to work at its facilities in Girona, Spain as part of the AuSpire researcher training program, co-funded by the European Commission under the MSCA COFUND scheme. The total working hours per week are 38 and there is a probation period of 6 months.

The remuneration, in line with the European Commission rules for Marie Skłodowska-Curie grant holders, will consist of a gross annual salary of 34.800 EUR. The definite amount to be received by the Postdoctoral Fellow is subject to Spanish tax legislation.

The position will be jointly supervised by IDIBGI (Employing Entity) and RMIT University (Seconding Entity), where the Postdoctoral Fellow must undertake a secondment at the premises of the latter in Melbourne, Australia for up to 12 months.

Additionally, the program includes compulsory annual in-person workshops at various locations across Spain, along with online training and networking activities.

## Benefits include

- 4,000 EUR relocation for employment stipend to cover costs associated with taking up employment (flights, visa, insurance, etc.), to be distributed monthly as a top-up to the gross salary.[1]
- 9,000 EUR relocation for secondment stipend to cover compulsory project-related travel and accommodation costs (flights, visa, insurance, accommodation, etc.).[1]
- 3,000 EUR travel stipend to cover flights and accommodation for participating in compulsory AuSpire training and networking events in Spain over the 3 years.[1]
- 314 EUR monthly family allowance offered to candidates who meet the criteria.[1] [2]
- Becoming a Marie Sklodowska-Curie fellow and being invited to join the Marie Curie Alumni Association.
- Spanish Social Security coverage.
- Sick leave.
- Parental leave.
- 26 days paid holiday leave and 7 days of discretionary personal time.
- Access to research and training facilities: Case-control human cohorts including people with and without obesity, IDIBGI Biobank, Experimental Laboratory, Drosophila “Fly Room” IDIBGI facility, The IDIBGI Ageing Program human cohorts.

[1] The definitive amount to be received by the Postdoctoral Fellow may be subject to Spanish tax legislation.

[2] According to MSCA-COFUND requirements, Fellows with family obligations are entitled to a family allowance (i.e. persons linked to Postdoctoral Fellow by (i) marriage, or (ii) a relationship with equivalent status to a marriage recognised by the legislation of the country or region where this relationship was formalised; or (iii) dependent children who are actually being maintained by the Postdoctoral Fellow).