Position Description

1. General information

Position reference	BSC-PF2: Computational Transcriptomics
Research area	Understanding how sex and aging shape immune function and contribute to autoimmune disease susceptibility and progression
Research fields	Single-cell transcriptomics; Immunology; Autoimmune diseases; Aging; Sex differences; Computational biology; Machine learning; Human genetics; Systems biology
Supervisors	• Marta Melé Messeguer (BSC) • Jennifer Boer (RMIT)
Available research capabilities	The successful candidate will join Marta Melé's Transcriptomics and Functional Genomics Lab at the Barcelona Supercomputing Center (BSC). Large-scale single-cell transcriptomic datasets are available, comprising over 10,000 donors, including both healthy individuals and patients with autoimmune diseases, with coverage of immune-mediated skin disorders such as atopic dermatitis, hidradenitis suppurativa, vitiligo, and alopecia areata. These resources include both peripheral blood and tissue-resident datasets, enabling the study of cellular states, molecular programs, and patient-level signatures associated with disease progression. Direct Access to the new European supercomputer MareNostrum 5, one of the most complete and versatile machines in the world at the service of the scientific community and the only one with two systems on the list of the 20 most powerful supercomputers of the world. MareNostrum5 has a total peak computational power of 314 Petaflops and it will provide 4 partitions with different technical characteristics that jointly can fulfil the requirements of any HPC user. Finally, the BSC provides with access to Big Data storage infrastructure, which has a total capacity of 650 Petabytes (including hard disk and long-term archive), as well as a well-trained team of highly skilled engineers able to provide support to researchers using the available high-performance computing infrastructures.
Find out more about the research groups	• https://www.bsc.es/discover-bsc/organisation/scientific-structure/life-sciences/transcriptomics-and-functional-genomics-lab-tfgl
Position funded by	• COFUND, Marie Sklodowska-Curie Actions (MSCA), Horizon Europe, European Union • BSC • RMIT University
Employing entity	Barcelona Supercomputing Center
Seconding entity	RMIT University
Foreseen start date	January 2027
Gross annual salary	40,000 EUR plus complements defined below

2. Expected Candidate Profile

The expected candidate profile for the position is as follows:

- PhD in Bioinformatics, Computational Biology, Genomics, Systems Biology, Systems Immunology, or a related field.
- Strong publication record.
- Experience in single-cell omics data analysis.
- Strong programming skills in Python and/or R and experience working in HPC environments.
- Experience with statistical modelling, machine learning, or AI approaches for biological data analysis is desirable.
- Excellent communication skills in English.
- Ability to work independently while contributing to a collaborative international research environment.

3. Employment Conditions

The Barcelona Supercomputing Center (BSC) offers a 36-month (3-year) postdoctoral full employment contract to work at its facilities in Barcelona, 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 37.5 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 40,000 EUR. The definite amount to be received by the Postdoctoral Fellow is subject to Spanish tax legislation.

The position will be jointly supervised by BSC (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]

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

- 9,000 EUR relocation for secondment stipend to cover compulsory project-related travel and accommodation costs (flights, visa, insurance, accommodation, etc.).[11]
- 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.[11]
- 314 EUR monthly family allowance offered to candidates who meet the criteria.[11] [2]
- Becoming a Marie Sklodowska-Curie fellow and be invited to join the Marie Curie Alumni Association.
- Spanish Social Security coverage.
- Sick leave.
- Parental leave.
- Holidays: 22 days of holidays + 6 personal days + 24th and 31st of December per our collective agreement.

We offer a full-time contract (37.5h/week), a good working environment, a highly stimulating environment with state-of-the-art infrastructure, flexible working hours, extensive training plan, restaurant tickets, private health insurance, and support to the relocation procedures.

[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).