Job Reference

137_LS_GCS_R1

Position

PhD Position in Computational Biology - 3D Chromatin Organization (R1)

Data de tancament

Diumenge, 15 Juliol, 2018

About BSC

The Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC-CNS) is the leading supercomputing center in Spain. It houses MareNostrum, one of the most powerful supercomputers in Europe, and is a hosting member of the PRACE European distributed supercomputing infrastructure. The mission of BSC is to research, develop and manage information technologies in order to facilitate scientific progress. BSC combines HPC service provision and R&D into both computer and computational science (life, earth and engineering sciences) under one roof, and currently has over 500 staff from 44 countries.

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Context And Mission

Human cells contain about 2 metres of linear DNA not-randomly packed into the nucleus of a few microns diameter, and the manner in which it is wrapped plays a fundamental role in regulating genome expression. In most of the cases, it does this by putting regulatory elements and target gene promoters into physical contact. It has been estimated that the genome harbours around one million regulatory elements, but the vast majority of interactions between these elements and the corresponding regulated gene are uncharted, constituting a major missing link in understanding genome control. The recent development of Promoter Capture Hi-C (PCHi-C) method has allowed for the first time the genome-wide systematic identification of the interacting regions that are in physical contact with 31,253 human promoters (Javierre, Cell 2016). Promoter interactions are highly cell type specific and interacting regions are enriched in non-coding SNPs. This technique has enabled to connect non-coding disease variants to putative target promoters, prioritizing thousands of disease-candidate genes and implicating disease pathways.

Chromatin interactions are crucial for cellular health due to their main role in genome expression regulation.
and errors in these interactions could give rise to the development of a broad range of diseases including cancer. For all these reasons, we want to deeply investigate the altered promoter interactomes in cancer and their functional repercussion. This knowledge will help us to improve our knowledge of the tumour process, providing new opportunities for the development of novel treatment approaches and diagnostic strategies. In our approach, we will combine cutting-edge experimental and computational approaches for analysing spatial-temporal changes in the 3D chromatin packaging and the epigenetic profiles.

The Computational Biology group, led by ICREA professor Alfonso Valencia, is looking for a PhD student to work in 3D Chromatin Organization and its role in cancer genomics. The project will be done and in close collaboration with Dr Biola M Javierre at Josep Carreras Leukaemia Research Institute. The successful candidate will join a dynamic research group within the Life Sciences department, which integrates independent senior scientists that work on various aspects of computational biology, ranging from bioinformatics for genomics and proteomics to computational biochemistry and text mining. The Researcher will work in a highly sophisticated HPC environment, will have access to systems and computational infrastructures, and will establish collaborations with experts in different areas. He/she will also have the opportunity to closely work with Dr Biola M Javierre, which uses cutting-edge experimental and bioinformatics approaches to understand the specific 3D chromatin organization of haematopoietic cells and its alteration in blood cancers.

**Key Duties**

1. Complete a PhD in bioinformatics, related to 3D Chromatin Organization and its role in cancer genomics.
2. Collaborate with various research groups, especially with the 3D chromatin organization group at Josep Carreras Leukaemia Research Institute.

**Requirements**

- **Education**
  - Education: MSc in Bioinformatics, Biotechnology or any field related to biomedicine.
- **Essential Knowledge and Professional Experience**
  - 0-2 years of experience in a similar role
- **Competences**
  - Fluency in spoken and written English.
  - Good communication and presentation skills.
  - Ability to work both independently and within a team.

**Conditions**

- The position will be located at BSC within the Life Sciences Department
- We offer a full-time contract, a good working environment, a highly stimulating environment with state-of-the-art infrastructure, flexible hours, extensive training plan, tickets restaurant, private health insurance, fully support to the relocation procedures
- Salary: we offer a competitive salary commensurate with the qualifications and experience of the candidate and according to the cost of living in Barcelona
- Starting date: 01/09/2018

**Applications Procedure**

All applications must include:
A motivation letter with a statement of interest, including two contacts for further references - COMPELLSORY - Applications without this document will not be considered
A full CV including contact details

Deadline

The vacancy will remain open until suitable candidate has been hired. Applications will be regularly reviewed and potential candidates will be contacted.

Diversity and Equal Opportunity Employment

BSC-CNS is an equal opportunity employer committed to diversity and inclusion. We are pleased to consider all qualified applicants for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, disability or any other basis protected by applicable state or local law.

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