



Postdoctoral Researcher position in the group “Evolutionary Processes Modeling”

Centre for Genomic Regulation (CRG)

The Institute

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

On the 19th of November of 2013, the Center for Genomic Regulation (CRG) received the [‘HR Excellence in Research’](#) logo from the European Commission. This is a recognition of the institute's commitment in 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).

The Role

We are looking for a postdoctoral researcher to join the Evolutionary Processes Modeling Group to help elucidate cancer evolutionary dynamics using population genetics predictions together with computational analysis of recently published and unpublished cancer sequencing data.

About the Group

Cancer is a genetic disease, subject to population genetics forces like mutation, selection and stochasticity. Our lab has recently demonstrated that coding sequences of cancer tumors not only exhibit positively selected mutations that drive cancer (www.biorxiv.org/content/10.1101/485292v1), but that there exist genes that the tumor cannot afford to lose to the mutational pressure (www.nature.com/articles/ng.3987). In addition to genes, we have also identified cancer driver loci in the non-coding part of the genome (www.nature.com/articles/s41467-017-00100-x). Both coding and non-coding selection can act to promote cancer defense mechanisms against therapy, which can be unveiled through the analysis of time-sequence data of cell-free DNA and of patient survival data.

Our lab is particularly interested in how the evolution and survival of cancer cell populations relies on mutation influx and in the selection inference from allele frequency information. To this end, we develop mathematical and computational approaches to estimate mutation rates and selection. We use whole-exome sequencing and whole-genome data repositories to analyze selection on coding and non-coding sequences. In addition, we analyze cell-free DNA from tumors and their temporal evolution in response to therapy. Estimates of the strength of selection in cancer allow for a prioritization of genes and non-coding regions by their disease relevance, with the ultimate goal of promoting therapeutic advances.

The Evolutionary Processes Modeling lab was established in October 2018 and is part of the “Bioinformatics and Genomics” program at the CRG in Barcelona, Spain. Further information can be found at www.crg.eu/en/programmes-groups/weghorn-lab.





Whom would we like to hire?

Education and training

- You have a PhD degree in population genetics, physics, statistics, genetics, bioinformatics, computer science or a related discipline.

Technical skills

- You should be familiar with principles of population genetics and statistical analysis.
- You have experience with computational analysis of sequencing and other biological datasets.

Languages

- You are fluent in English.

Competences

- You are highly motivated and eager to work on biological problems through the use and development of theoretical and computational approaches.

The Offer

- **Contract duration:** 1 year (with possibility of extension).
- **Estimated annual gross salary:** Salary is commensurate with qualifications and consistent with our pay scales.
- **Target start date:** Immediately.

We provide a highly stimulating environment with state-of-the-art infrastructure, and unique professional career development opportunities.

We offer and promote a diverse and inclusive environment and welcome applicants regardless of age, disability, gender, nationality, race, religion or sexual orientation.

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

Applications must include:

1. A letter of motivation.
2. A complete CV, including a list of publications.
3. A brief statement of research interests.
4. Contact details (or reference letters) of at least two referees.

Applications should be submitted online on the CRG Careers website:

<http://www.crg.eu/en/content/careers/job-opportunities>. Enquiries can be addressed to dweghorn@crg.eu.

All personal data requested by CRG from applicants will be treated in accordance with the principles of the Data Protection Act (15/13 December 1999).

Deadline: June 30, 2019.





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