EVOLUTIONARY DYNAMICS

The Bank lab @ the Gulbenkian Institute

Positions

Wanted: postdocs, programmer, and a PhD student!

Individuals with any scientific background (i.e., including evolutionary, molecular, or systems biology, mathematics, physics, chemistry, computer science, statistics, and its hybrids) with a genuine interest in evolutionary questions and quantitative approaches are welcome to apply to the available ERC-funded positions under the project "FIT2GO – A toolbox for fitness landscapes in evolution".

Building on evolutionary theory, research in the lab revolves around quantifying epistasis across levels of biological organization and across environments, and to study its impact on the population genetics of adaptation and hybridization. We approach these questions through a combination of mathematical modelling, computer simulations, statistical method development, experimental evolution, and data analysis and interpretation. The long-term goal lies in understanding how ecology, evolution, and molecular constraints shape genomes.

Programmer position

The programmer's missions will be the following:

- develop algorithms and code for lab projects
- provide well-documented implementation of methods and simulations to be released as supplements or software packages
- write methods, results, and manuals related to above-mentioned programming
- manage the lab's computing resources
- assist lab members regarding computing/computer questions
- assist lab members regarding data and code management
- promote reproducibility of lab research
- maintain and extend the website

A general interest of the applicant in biology is essential.

Application procedure

Applications should be sent by email to evoldynamics[@]gmail.com and include a letter of motivation, a CV, and names and contact information of at least two referees. The earliest starting date is 1 March 2019, and the anticipated duration of the position is up to 5 years (based on a working contract according to experience/qualification up to TRU level 37). Review of applications will begin on February 1, and the call remains open until the position is filled.

PhD student position

The PhD project will be developed in collaboration with the respective candidate and may be focused on either or several of the following topics:

- develop mechanistic and statistical models of fitness landscapes across environments
- quantify intra- and intergenic epistasis and its consequences for adaptation
- infer distributions of fitness effects across genetic backgrounds and environments (experimentally and theoretically)
- quantify population dynamics and genetics under clonal interference and epistasis
- develop statistical methods for experimental-evolution data analysis
- study the effects of epistasis on diversity and divergence
- develop approaches to predict the cost of antibiotic resistance across environments (in collaboration with Isabel Gordo, IGC)
- test predicted mechanisms of drug resistance in influenza experimentally (in collaboration with Maria João Amorim, IGC)

Application procedure

Applications should be sent by email to evoldynamics[@]gmail.com and include a letter of motivation, a CV, and names and contact information of at least two referees. The anticipated starting date is 1 September 2019. The student will be associated with the IGC's PhD Programme in Integrative Biology and Biomedicine and has to fulfill the according selection criteria; parallel application to the PhD Programme through the respective online platform is encouraged but not necessary. Review of applications will begin on February 15, and the call remains open until the position is filled.

Junior/senior postdoc positions

Postdoc projects will be developed in collaboration with the respective candidate and may be focused on either or several of the following topics:

- develop mechanistic and statistical models of fitness landscapes across environments
- quantify intra- and intergenic epistasis and its consequences for adaptation
- infer distributions of fitness effects across genetic backgrounds and environments (experimentally and theoretically)
- quantify population dynamics and genetics under clonal interference and epistasis

- develop statistical methods for experimental-evolution data analysis
- study the effects of epistasis on diversity and divergence
- develop approaches to predict the cost of antibiotic resistance across environments (in collaboration with Isabel Gordo, IGC)
- test predicted mechanisms of drug resistance in influenza experimentally (in collaboration with Maria João Amorim, IGC)
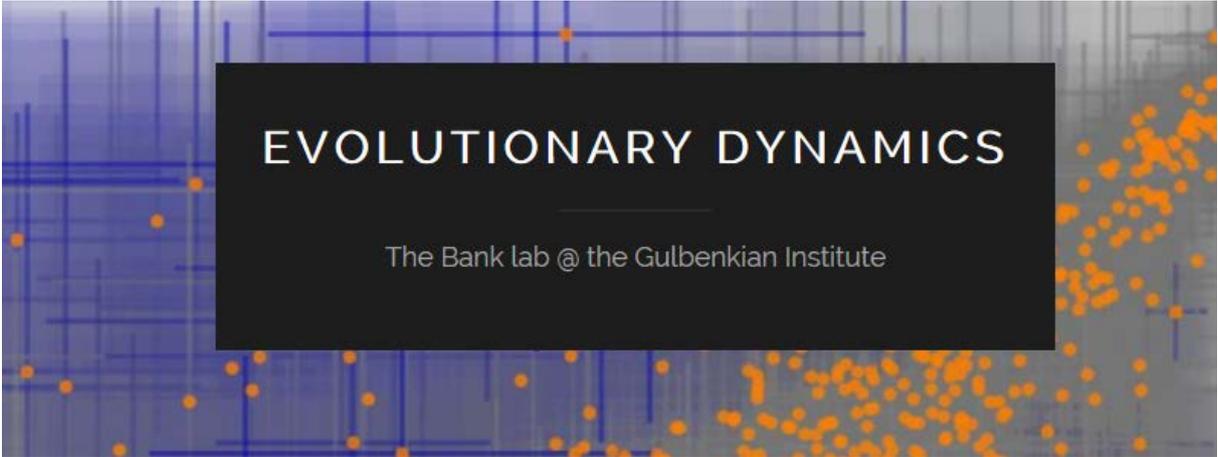
Application procedure

Applications should be sent by email to evoldynamics[@]gmail.com and include a letter of motivation, a CV, and names and contact information of three referees. The earliest starting date is 1 March 2019, and the anticipated duration of each position is 2-4 years (via postdoctoral fellowships or working contracts up to TRU level 37). The call remains open until all positions are filled.

Location

The Gulbenkian Science Institute is a private research institute located on the coast just west of Lisbon, Portugal, which provides for both a top-level scientific environment and excellent quality of life. The IGC's mission is to meet science's global challenges: to make ground-breaking discoveries in the Life Sciences, to innovate in training, to incubate the next generation of future leaders, and to place science at the heart of society. Potential applicants are highly encouraged to scroll through the lab and institute websites and to informally contact us to learn more about IGC and the Evolutionary Dynamics Group.

Lab philosophy

We strive to maintain an open, non-hierarchical atmosphere in the lab, with regular (weekly) personal and group meetings, flexible working hours, and breaks. Being member of an interdisciplinary lab provides a great opportunity to interact with people of complementary expertise who each contribute and discuss their respective viewpoints and ideas. The aim is to find novel and synergistic approaches and solutions that bridge between fields. However, joining an interdisciplinary lab also requires more reading, learning about new topics, and interest and openness towards other fields and opinions.

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