



Position by institution 1

ESR No. 1
Host Institution: Center for Genomic Regulation, Barcelona
ESR enrolled at: Universitat Pompeu Fabra, Barcelona

Institute	Center for Genomic Regulation, Barcelona
Lab	Comparative Genomics Group
Responsible person	Toni Gabaldón, PhD
Job title	Early Stage Researcher: PhD thesis on Comparative genomics of fungal pathogens
Job description	<p>Short description:</p> <ul style="list-style-type: none"> - Required degree: BSc (Hons) (e.g. U.K./Ireland), MSc in biology, biochemistry or equivalent - Preferred qualification and expertise: molecular biology, knowledge in use of molecular-biological databases, biochemistry, advanced bioinformatics knowledge - Duration: 36 months - Language: English (essential), - Contact: Toni Gabaldón, Tel.: +34 933160281; Mail: toni.gabaldon@crg.eu <p>The Comparative Genomics Group: The main research interest of our group is to understand the complex relationships between genome sequences and phenotypes and how these two features evolve across species. We generally use large-scale phylogenetics approaches that allow looking at the evolution of genomes from the perspective of all of their genes, and we apply these analyses to a variety of biological questions related the evolution and function of organelles, pathways, and protein families. We have a special interest in understanding processes related to human pathogenesis (emergence of infectious disease, and organelle-related genetic diseases).</p> <p>Through collaborations with experimental groups we apply comparative genomics to discover new mechanisms and genes involved in interesting processes, especially those of clinical relevance (see lines of research). Given that we work in an emerging field and we are exposed to new types and scales of data, we often have the need to develop novel bioinformatics tools to fill in existing gaps. We invite applications for an Early Stage Researcher position within the MSC Opathy network. Candidates with a MSc degree (or equivalent) in biological, biochemical sciences or in related disciplines are desired. In addition bioinformatics knowledge is of advantage for this position.</p> <p>PhD project <u>Objectives:</u> To understand how virulence towards humans evolves across <i>Candida</i>. Comparative genomics of fungal pathogens with a dual objective of: i) identifying regions of high diagnostic potential in fully sequenced fungi; ii) finding genomic determinants of pathogenicity of <i>Candida</i> species. Implement these procedures in the OPATHY pipeline</p> <p><u>Methodology:</u> Sequencing of strains provided by P2 and clinical partners using bioinformatics tools to compare newly-sequenced whole genome sequences.</p> <p><u>Expected Results:</u> Increased understanding how host-pathogen interactions vary during infection and across <i>Candida</i> species.</p> <p>Planned secondment(s): BIOTECHVANA (1 month; Y1; pipeline development); UCD (1 week; Y1; learning <i>Candida</i> comparative genomics); KNAW (1 months; Y2; wet lab experiments to validate markers identified by bioinformatics).</p>