

PhD position
“Assessment of the secreted metabolome in *Candida albicans*”
at BIOASTER, within the European FunHoMic consortium

Position based in Lyon, France

The current project is in the framework of FunHoMic: “Deciphering the fungus-host-microbiota interplay to improve the management of fungal infections” a MSCA European Innovative Training Network (ITN), which started on the 1st of January 2019. www.funhomic.eu

BIOASTER is a Technology Research Institute working to develop a unique technological and innovative model to support the latest challenges in microbiology, in the fields of antimicrobials, vaccines, diagnostic and microbiota.

Because today’s microbiology and its applications has evolved outside of its own boundaries, it is necessary to embrace technologies enabling the study of the interactions of microbes with the host and the drug. Thus, BIOASTER has elected to focus on technologies that allow assessing the biology of each of those elements, in particular Omics technologies.

In this context, BIOASTER Omics Hub develops and implements innovations in Genomics & Transcriptomics, Metabolomics, Proteomics and Immunomonitoring, with the objective to leverage Omics approaches to address technological locks within BIOASTER’s collaborative projects. The Omics Hub offers an access to up-to-date and integrated Omics technologies, together with the associated expertise, that is mandatory for the discovery of new antimicrobials or vaccines, the understanding of host/microbes interactions, or the identification of biomarkers.

Project background:

Metabolic interactions are central to the fungus-microbiota-host interface, yet little is known about the *C. albicans* metabolome, which is the most common yeast of the human gut microbiota. In this project, using cutting-edge NMR/MS technologies and bioinformatics tools, we propose to investigate the dynamics of the metabolome during *C. albicans*/host/microbiota interactions.

Through advanced *in silico* metabolic models and approaches such as metabolic fingerprinting, profiling or imaging, the PhD student will:

- study the impact of metabolism on *C. albicans* tropism, colonization and infection outcome, to allow the development of novel predictive tools for the management of fungal infections and highlight valuable targets for antifungal therapy. In particular, the PhD student will:
 - o define the metabolic variations across *C. albicans* isolates and to what extent specific metabolites offer diagnostic potential
 - o define molecular mechanisms underlying some original phenotype associated with particular clade isolates
- help identify and develop novel Live-Biotherapeutic Products for the management of fungal infections, by characterizing their mode of action

Candidate profile:

Eligibility criteria:

Applicants can be of any nationality and must be Early-Stage Researchers in the first four years of their research career and must not have been awarded a PhD. They must not have resided or carried out their main activity (work, studies, etc.) in France for more than 12 months in the 3 years immediately prior to their recruitment.

Skills:

- Engineer or Master Degree in analytical sciences or biology,
- Training in analytical techniques such as mass spectrometry or NMR,
- Knowledge and first experience in metabolomics research,
- Excellent writing and oral skills,
- Fluency with the scientific watch, bibliographic research/state of art analyzing
- Knowledge in microbiology and fungal biology would be an added value.
- A good level of English is required. Basic level of French would be appreciated.

Personal qualities:

- Work in autonomy, organization and method,
- Team player,
- Capacity of working transversely with multicultural teams.
- Open minded
 - Curiosity for the whole scientific and technological area
 - Interest in disruptive technologies in microbiology and infectious diseases
 - Orientated applied research
 - Bibliographic studies and analysis of the state of art on diverse themes.

Our offer

The PhD position is for 3 years.

The successful candidate will be part of a dynamic multidisciplinary team, the Omics Hub based in Lyon, France and will have access to cutting edge technologies, such as High Resolution mass Spectrometry or NMR. Through these technologies, he/she will pursue an exciting, challenging research project at the forefront of modern medical mycology.

Through the FunHoMic program, he/she will gain in-depth interdisciplinary training through network-wide collaborations, inter-sectoral mentoring and secondments, summer schools and webinars.

As a PhD student, he/she will be mentored by a Thesis Advisory Committee, directed by Vincent Thomas, head of BIOASTER microbiota program (BIOASTER Paris), Frédéric Béquet, head of the Omics Hub as a local co-supervisor and involving Christophe d'Enfert (Institut Pasteur). He/she will register at the "Ecole doctorale BioSPC" and will engage in the Paris Descartes University PhD program.

BIOASTER is an equal opportunity employer and accustomed to welcoming international researchers. Salary is paid according to the regulations of the [Marie Skłodowska-Curie Actions](#) and the successful candidate will benefit from a work contract in line with national regulations.

Application procedure:

Application is made through BIOASTER's web site: <https://www.bioaster.org/en/join-us/>