FUNDACIÓN
CENTRO DE EXCELENCIA
EN INVESTIGACIÓN DE
MEDICAMENTOS INNOVADORES
EN ANDALUCÍA

PhD Position in Fungal Natural Products Biosynthesis

Are you interested in being part of an exciting multidisciplinary European network of young scientists to address current challenges in microbial natural products research?

We are looking for one PhD candidate with expertise in natural products biosynthesis to explore the biosynthetic diversity of minor fungal taxa and contribute to boost the discovery of novel bioactive fungal natural products.

MAGic-MOLFUN aims to integrate Natural Products Genome Mining, computational metabolomics and state-of-the art metabolic engineering and pathway discovery to develop ground-breaking tools and approaches to improve the discovery and characterization of novel natural products in bacteria and fungi, two major sources of bioactive compounds for applications in medicine, agriculture, food and biotechnology.

Position Description

A 3-year PhD Studentship is available for an independent and highly motivated young scientist to work in the **Departments of Microbiology and Chemistry at Fundación MEDINA**.

The doctoral candidate will be recruited under the framework of the new **Marie Skłodowska-Curie Doctoral Network MAGic-MOLFUN-** *Matching Genes with MOLecules for FUNctional Analysis* – funded by the European Commission under the Horizon Europe Program. The successful candidate will join a multidisciplinary team working in the field of microbial natural products discovery to develop a PhD project focused on the identification of new bioactive fungal natural products from minor fungal species from MEDINA collection.

The candidate will develop a multidisciplinary study on a selection of candidate fungal strains with the potential to produce novel bioactive chemical entities. The process will involve the exploitation of the fungal metabolome diversity from an array of production conditions, including the use of metabolomic networking tools, the bioassay-guided isolation and structural elucidation of selected new molecules, and the application of genome mining tools from high quality genome sequences to identify the biosynthetic gene clusters (BGCs) involved in their biosynthesis and predict the mechanism of biosynthesis. All the molecules of interest derived from the project will be profiled for their bioactivity in the broad panel of assays available at MEDINA.

Two secondments at other participants institutions are foreseen to expand knowledge on fungal genome mining and BGCs reconstruction related with the annotation and application of new fungal pathways prediction tools (secondment 1), and the industrial production optimization and scale-up of bioactive fungal molecules of interest (secondment 2).

Position requirements for candidates:

Fundación Centro de Excelencia en Investigación de Medicamentos Innovadores en Andalucía, MEDINA ES-G-18889444
Avda Conocimiento 34, Parque Tecnológico Ciencias de la Salud, 18016 Granada, Spain.
Tel. +34 958 993 965 Fax. +34 958 846 710
info@medinaandalucia.es http://www.medinadiscovery.com

- A Master Degree, preferably in Biological or Chemical Sciences, is mandatory to fulfil the criteria of the University of Granada awarding the PhD (please see UGR rules at https://escuelaposgrado.ugr.es/doctorado/estudiantes/requisitos?lang=en).
- Experience in microbiology, especially in the cultivation and production of fungal metabolites.
- Experience in general molecular microbiology techniques and in the application of microbial genome DNA isolation and analysis tools.
- Solid knowledge in the analytical tools applied in metabolome analysis and used for the dereplication of known natural products in extracts
- Solid knowledge of natural products biosynthesis and tools to mine the genome of microorganisms
- Knowledge of the isolation of natural products from complex microbial cultures, chromatography and other purification methods.
- Basic knowledge of 1D, 2D NMR and MS techniques to elucidate natural product structures.
- Ability to work independently on its own initiative and as part of a team
- Excellent oral and written communication skills in English are expected for an effective interaction with our multidisciplinary research team and other members of the Doctoral Network.

Who can apply?

Applicants must be doctoral candidates, i.e. not already in possession of a doctoral degree at the date of the recruitment. The Doctoral Network program requires transnational mobility and candidates must not have resided or carried out their main activity (work, studies, etc.) in the country of the recruiting beneficiary for more than 12 months in the 36 months immediately before their date of recruitment.

Interested applicants meeting these requirements should send to the following email address: magic.molfun@medinaandalucia.es

- A complete CV (personal details, academic/education history, research experience, experimental skills, publications, other)
- Names and contact information for qualified personal references
- A personal statement of interest/motivation letter (Provide authorization to handle personal data according to EU General Data Protection Regulation).
- Applications must be submitted as **one PDF file** containing all materials to be given consideration.

Enquiries about the position will be answered through the same e-mail address. Applications will be considered until January 31, 2023. The starting date is planned to be mid-2023.

The selected candidate will be employed for three years at Fundación MEDINA (Granada, Spain; www.medinadiscovery.com).
Gross salary will be of 2,353.46 €/month plus the Marie Curie supplement allowance according to the rules established for Doctoral Networks under the Horizon Europe Program (https://marie-sklodowska-curie-actions.ec.europa.eu/actions/doctoral-networks). It is possible to apply for family allowance. Contract will extend for a fixed period of three years and will be in accordance with the Spanish legislation.

We would like to encourage all nationalities to apply. MAGicMOLFUN supports a balanced gender representation by promoting genuine equal access opportunities throughout the recruitment process.

Horizon Europe MSCA Doctoral Network MAGic-MOLFUN

Leading European universities, research centers and industrial partners are joining forces to speed up the search for new useful molecules for sustainable application. In **MAGic-MOLFUN**, a new Marie Skłodowska-Curie Doctoral Network, funded by the European Union, we will recruit 12 outstanding PhD students from all over the world and train them to become world-class specialists in the Natural Products field. The PhDs will have a chance to join one of the five leading European universities/research centers and two companies and closely collaborate within the network and further associated companies within the pharma, biocolors and agri-biotech sectors, that will host you for secondments.
The MAGicMOLFUN consortium will train the next generation of specialists for transforming natural products research. Doctoral candidates will be educated in a combination of wet-lab and computational skills to integrate genome mining and metabolomics with cutting-edge pathway discovery- and engineering approaches. There is a fast-growing demand for these combinations of skills, but these are rarely taught in current integrated training programs. These multidisciplinary skills and qualifications will be acquired while achieving the scientific goals of the program, namely understanding and developing the complex biosynthesis and production of microbial NPs for cross-sector applications such as medicine, food, agriculture, or biotechnology. Specifically, the Doctoral Candidates (DCs) will work in our three main research areas with projects exploring (i) From genes to molecules, (ii) From molecules to genes and (iii) From molecules to applications
In addition to an exciting research PhD project, you will receive a comprehensive transferable multidisciplinary skill training that includes a personal career development plan. Students graduating from MAGicMOLFUN will be in a unique position for a successful career in industry and academia.

:

About Fundación MEDINA

Fundación MEDINA (www.medinadiscovery.com) is a Research Organization established in the Health Sciences Technology Park, Granada (Spain) as a private-public partnership between the Government of Andalucía (Spain), the University of Granada and Merck Sharp and Dohme de España S.A.
MEDINA is an independent and non-profit entity with innovative research collaborations and contracts with academic and industrial partners worldwide. We are engaged in the discovery of novel drug candidates and new biomarkers with Pharma and Biotech companies and research groups, as well as of new biotechnological products for use in crop protection for the Agrofood industry, Consumer products (Cosmetic and Nutrition) and new enzymes for industrial processes.
MEDINA owns one of the largest Collections of Microbial Strains (190.000 strains) and the most chemically diverse Natural Products Libraries (200.000 extracts) with a longstanding,

successful track record in delivering novel drug candidates for development as pharmaceuticals. Our team has unique expertise in natural products microbiology, chemistry, high throughput screening, as well as a strong analytical chemistry platform for molecular structure elucidation and bioanalysis.

We are currently active in drug and biomarker discovery programs in infectious diseases (including tuberculosis and parasitic diseases), cancer, CNS, and rare diseases. Leveraging our unique strengths in high precision-high throughput analytics and bioanalytics we are collaborating with clinical investigators in translational research programs for biomarker discovery and metabolomic profiling of patient samples.

MEDINA has 2.300 square meters of laboratories equipped with state-of the-art technology to carry out the full process leading to the discovery of new bioactive molecules. This includes, among others, cutting edge technology platforms in Molecular microbiology and fermentation, Natural products chemistry and metabolomics, and High Throughput Screening.