

IBMC - Instituto de Biologia Molecular e Celular

Postdoctoral fellowship (f/m)

Internal Code: Norte2020HOST01

Project: NORTE-01-0145-FEDER-000012, Structured Programme on Bioengineering Therapies for Infectious Diseases and Tissue Regeneration

Title: Novel cyanobacterial bioactive compounds

IBMC/i3S is opening **1 (one) Postdoctoral Fellowship** to join its Research Program in the “Identification of novel bioactive compounds and the development of tools for their production in bacterial chassis”

We are looking for a Fellow holding a PhD in Biology, Biochemistry or related fields with experience and full autonomy in Molecular and Cellular Microbiology, namely working with cyanobacteria and secondary metabolites. English language, both spoken and written, and good inter-personal relationships in the context of a multidisciplinary research team are essential attributes. Preference will be given to candidates with these characteristics.

Group and PI: Bioengineering and Synthetic Microbiology Group (P. Tamagnini)

Work Plan: A two-step work plan has been conceived for the production of novel microbial-derived drugs using a synthetic biology approach. The first step comprises the genome mining of selected cyanobacteria strains. Genome sequences will be analysed for the presence of secondary metabolites biosynthetic gene clusters using bioinformatics tools (e.g. antiSMASH). In simultaneous, the previously analysed cyanobacterial extracts will be screened for biological activities. Extracts with activity will be processed to isolate and characterize the chemical identities (e.g. by NMR). Most probably, the production titres obtained in the native strains will be sufficient for small-scale characterization and preliminary activity testing; however they will not be enough for future downstream industrial applications. Therefore, the second step consists in the development a synthetic biology toolbox for the expression of secondary metabolites biosynthetic clusters using *Synechocystis* as host/chassis. The toolbox will include regulatory elements such as promoters, RBS and riboswitches that will allow fine-tuned expression of the desired clusters and compounds titres. The characterization of these elements will be performed using the already identified genomic neutral sites and vectors available in our lab.

The information gathered from genome mining and the genome-scale metabolic model of *Synechocystis* will be used to define strategies for expressing biosynthetic gene clusters, considering potential bottlenecks such as precursor bioavailability, gene expression and compound export processes. Based on the defined strategies, synthetic devices will start to be assembled using the developed tools, for later implementation into the appropriate chassis.

The work will be developed at Instituto de Investigação e Inovação em Saúde - i3S, Porto, Portugal.

The Postdoctoral Fellowship will be for 6 months, not renewable, and it is expected to start in May 1st 2016.

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The fellowship amount is 1495 euros, paid by bank transfer, preferentially.
(<http://alfa.fct.mctes.pt/apoios/bolsas/valores>)

Fellowships are regulated by current laws relating to the Statute of Science Research Fellows, namely Law 40/2004 of August 18, amended and republished by Decree-Law No. 202/2012 of 27 August and the Regulation of Scientific Research Studentships of IBMC approved by Fundação para a Ciência e Tecnologia
(<http://www.fct.pt/apoios/bolsas/docs/RegulamentoBolsasFCT2015.pdf>)

Selection Committee:
Paula Tamagnini, PhD
Marta Vaz Mendes, PhD
Paulo Oliveira, PhD

Applications are open from March 15th to March 31st, 2016.

To apply for the Postdoctoral Fellowship interested candidates must hold a PhD degree and submit the following documents a) Complete CV; b) Letter of Motivation; and c) Referee Letter, *via* the online application system:

<http://www.ibmc.up.pt/gestaocandidaturas/index.php?codigo=Norte2020HOST01>

The ranking list of candidates will be published at IBMC website, and the selected candidate will be notified by email.