(BL76/2025-IST-ID)

Research Studentships (for students of a course that does not award an academic degree)

Applications are open for 1 Research Studentship(s), within the framework of project/R&D institution LA i4HB, 1801P.01140 (thematic line "Advanced Diagnostics and Therapies"), financed by national funds through FCT/MCTES (PIDDAC), under the following conditions:

Scientific Area: Production Engineering and Technology

Admission Requirements:

a) to hold a bachelor or master degree and be enrolled at a course that does not award an academic degree and it is integrated in the educational project of a higher education institution, performed in association or cooperation with one or several R&D units;

b) not to exceed with this contract, including the possible renovations, an accumulated period of two years in this type of studentship, continuously or with interruptions.

Workplan: This project aims to optimize the use of recombinant lactic acid bacteria (LAB) as biotherapeutic agents capable of producing curcumin *in situ* in the gastrointestinal tract for cancer prevention and therapy. It was observed that the modified LAB metabolize the substrate (ferulic acid) into an unidentified compound instead of curcumin. Preliminary mass spectrometry (MS) and nuclear magnetic resonance (NMR) analyses suggest that this compound is a geranyl derivative, which may possess interesting therapeutic properties. The objectives of this work are to produce, identify, and characterize the new compound using advanced MS and NMR techniques (iBB) to assess its potential anti-cancer and anti-inflammatory properties using representative cellular models of endometrial cancer and stromal cell inflammation (UCIBIO Porto). Specifically, a key task will involve the production and purification of the new compound by HPLC to complete MS and NMR analyses for its accurate identification. The purified compound will then be used in assays with the cellular models, using curcumin as a positive control. To explore recombinant LAB as therapeutic platforms, the project will also include a Molecular Biology component, focusing on the construction of LAB plasmids encoding shRNAs to inhibit angiogenesis in the cellular models.

Legislation and Regulations: Statute of Scientific Research Fellow, approved by Law nr. 40/2004, of August 18, as worded by Decree-Law nr. 123/2019, of August 28; FCT Regulation for Research Studentships and Fellowships, available on https://www.fct.pt/apoios/bolsas/docs/RegulamentoBolsasFCT2019.pdf and https://dre.pt/application/file/a/127230968 .

Workplace: The work will be developed at Institute of Bioengineering and Biosciences of Instituto Superior Técnico, in the laboratories of the Bioprocess Engineering group, under the scientific supervision of Professor(a)/Doutor(a) Gabriel Monteiro e Doutor(a) Sofia Duarte.

Duration: The research fellowship(s) will have the duration of 6 months. It's expected to begin in April 2025, and may be eventually renewed up to the maximum of 12 months, including the duration of the initial contract.

Monthly maintenance allowance: According to the values for Research Fellowships awarded by FCT in Portugal (https://www.fct.pt/wp-content/uploads/2025/02/Tabela_valores_SMM_2025.pdf), the amount of the monthly maintenance allowance is €1309,64, being the payment method of the Fellow by wire transfer.

Selection methods: The selection methods will be the following: *Curriculum evaluation (grades; curriculum program; engineering training) – 60%; Experience in the tasks to be performed and immediate availability – 20%; Motivation for this work (assessed through a motivation letter) – 20%.*

Composition of the selection Jury: Professor Mário Berberan e Santos, Professor Duarte Miguel Prazeres, Professor Gabriel Monteiro.

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Announcement/ notification of the results: The final evaluation results will be communicated to all applicants by email.

Deadlines and procedures for prior hearing, complaint, and appeal: After the provisional list of evaluation results is communicated, candidates have a period of 10 working days to, if they wish, present their statements in the context of a prior hearing of interested parties, in accordance with Articles 121 and following of the Administrative Procedure Code. The final decision will be issued after analyzing the statements submitted in the prior hearing phase. A complaint against the final decision may be submitted to the Selection Committee within 15 working days, or an appeal may be lodged with the President of IST-ID within 30 working days, both counted from the date of notification.

Application deadline and formalization: The call is open from March 27 until April 9, 2025.

It is mandatory to formalize applications with the submission of the following documents: i) B1 Form – Fellowship application (https://ist-id.pt/concursos/bolsas/); ii) *Curriculum Vitae*; iii) academic degree certificate, where applicable; iv) proof of enrollment at a course that does not award an academic degree; v) motivation letter; vi) declaration on honour that the applicant does not exceed with this contract an accumulated period of two years in this type of studentship, continuously or with interruptions.

Applications must be submitted to the email*:* mafalda.firmino@tecnico.ulisboa.pt