(BL202/2021-IST-ID)

Research Studentships (PhD students)

A call for applications is now open for the attribution of one (1) PhD Research Grant at Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento (IST-ID), within the scope of the project SOL – Smart ocular lenses for the treatment of diabetic eye diseases, ref. PTDC /CTM-CTM/2353/2021, with the financial support of FCT/MCTES (PIDDAC), under the following conditions:

Scientific Area: Materials Engineering/Biomedical Engineering/Pharmaceutical Sciences

Admission requirements: National, foreign and stateless persons, holders of a Master degree in Materials Engineering, Biomedical Engineering, Pharmaceutical Sciences or similar, can apply to the call. Preferred factors: a) Proven experience in the development and advanced characterization of (bio)materials and/or pharmaceutical formulations b. Fluency in English.

Workplan: The main goal of the work will be to develop and optimize new drug delivery systems for the treatment of diabetic ocular diseases, based on soft contact lenses (SCLs) and/or intraocular lenses (IOLs), that allow a sustained drug release into the eye and a higher bioavailability relatively to the conventional pharmacological treatments (e.g. eyedrops). Hydrogels intended for SCLs or IOLs will be synthesized, characterized, and submitted to drug loading/release tests. The hydrogels will be modified when needed to improve the drug release profiles. Different strategies (e.g., coatings, molecular imprinting, addition of cyclodextrins) will be adopted to improve the efficacy of the different pairs material+drug. The use of prodrugs or drug incorporation in nanostructures could also be considered to retard the drug release and protect the drugs in the biological medium. Innovative techniques, such as ocular compact iontophoresis or the use of cell penetrating peptides (CPP) will be tested to increase drug's ability to cross the corneal epithelium or other ocular tissues and reach the back of the eye. Sterilization, storage and stability of the devices along the time will also be addressed. In vitro and ex vivo tests will allow to evaluate the biological performance of the developed systems. Finally, the most promising systems will be submitted to in vivo tests with animal models.

Applicable 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 performed at Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento (IST-ID) - Centro de Química Estrutural (IST-ID - CQE), Instituto de Medicina Molecular João Lobo Antunes (IMM) and the University of Santiago de Compostela (Spain), under the scientific guidance of Professors Ana Paula Serro, Ana Silva Herdade and Carmen Alvarez-Lorenzo. An internship is planned at Colorado School of Mines (USA) under the supervision of Prof. Anuj Chauhan, as well as collaborations with other partners of the SOL project, namely Instituto Universitário Egas Moniz.

Duration of the grant: The scholarship will have a duration of 6 months, renewable up to a maximum of 36 months, starting on February 1st, 2022.

Monthly maintenance subsidy: The scholarship amount corresponds to € 1104.64 (one thousand one hundred and four euros and sixty four cents) per month, according to the table of values of the scholarships awarded directly by FCT, I.P. in the Country (http://www.fct.pt/apoios/bolsas/valores), plus Voluntary Social Insurance and Personal Accident Insurance. Accommodation and travel for the secondments out of Portugal will be supported by the project SOL.

Selection method: The selection method is based in a first stage on the curricular evaluation. The three candidates with the best classification will be invited to an interview where, besides discussing their curriculum and motivation, they will also prove their fluency in the English language. The final grade will be the weighted average of the curriculum evaluation (weight 60%) and the interview (weight 40%)

Composition of the Selection Jury: The Jury will be composed of: Ana Paula Serro (Chairman),Prof. Benilde Saramago; Prof. Rogério Colaço, Ana Silva Herdade (member) and Carmen Alvarez-Lorenzo (member).

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

Deadlines and procedures of complaint and appeal. A complaint may be lodged from the final decision within 15 working days, or an appeal to the Executive Board of IST-ID within 30 working days, both counted from the respective notification

Deadline for application and form of submission of applications: The call is open from the 3 until 14 January 2022.

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 an academic degree course ; v) motivation letter;

Applications must be submitted to the email*: bolsas@drh.tecnico.ulisboa.pt*

FCT Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR