



## NOTICE OF OPENING OF AN INTERNATIONAL CALL FOR THE SELECTION OF A PhD HOLDER RESEARCHER UNDER DECREE-LAW NO. 57/2016

**Internal code: Researcher/FCT\_SUPERATE/i3S/1106/2025**

A call is opened for the position of a PhD holder, for an unfixed term work contract to carry out research duties within the project “**SUPERATE: Super-Diffusive Anisotropic Nanoparticles for Oral Administration of Therapeutic Peptides**”, with reference COMPETE2030-FEDER-00670700, Operation No. 15629, funded by COMPETE2030 and national funds (FCT) under Call for Applications No. MPr-2023-12.

**Scientific Area:** Biomedical Sciences.

### 1. Project summary and work plan

Oral delivery of biopharmaceuticals such as insulin remains challenging. We propose engineering anisotropic, self-propulsive nanoparticles that feature super-diffusive transport in intestinal mucus. Nanoparticles will then be tested as oral carriers for insulin in a type 1 diabetes mellitus rodent model. It is expected that super-diffusive nanoparticles can tackle the mucus barrier and promote improved therapeutic efficacy of insulin.

The project involves the following interrelated activities that will be conducted over a three-year period:

- a) Manufacturing and physicochemical characterization of anisotropic nanoparticles using surface masking techniques;
- b) Transport characterization of anisotropic nanoparticles in intestinal mucus using multiple particle tracking video microscopy;
- c) Study of the mucosal distribution and retention of super-diffusive nanoparticles in mice or rats following oral administration using in vivo and ex vivo near-infrared imaging;
- d) Development of oral super-diffusive, insulin-loaded NPs for type 1 diabetes mellitus management, including efficacy testing in a rat or mouse model of the disease.

The recruited Junior Researcher will spend approximately 85% of their effort on wet-lab tasks and the remaining time on data analysis/integration and manuscript/report writing. The recruited Junior Researcher will be working under Dr. José das Neves supervision.

### 2. Applicable Portuguese legislation

Decree No. 57/2016, of August 29 – Legal Framework for Scientific Employment (RJE) – in its current version.

Portuguese Labor Code, in its current wording.

### 3. Jury

Chairman: José das Neves; Other Members: Bruno Sarmiento, Rute Nunes; Substitute: Catarina Leite Pereira.

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#### 4. Workplace

i3S - Rua de Alfredo Allen, 208 Porto, research group Nanomedicines & Translational Drug Delivery.

#### 5. Professional category and monthly remuneration

Junior Researcher.

€ 2.351,53, corresponding to index 33 of the Tabela Remuneratória Única, whose application is intended for PhD holders with reduced post-doctoral experience or without a post-doctoral scientific curriculum.

#### 6. Obligatory requirements for admission

- PhD degree in Biomedical Sciences, Biomedical Engineering, Pharmaceutical Sciences or related areas;
- Experience in the production, drug encapsulation and physicochemical characterization) of nanomedicines.
- Experience with mammal cell culture handling and maintenance techniques;
- Experience in working with laboratory rodents (mice and/or rats);
- License for working with laboratory rodents certified by Portuguese DGAV or equivalent entities (functions A+B+D, former FELASA C);
- Motivation Letter in English indicating availability to start the position on 01/09/2025.

#### Other requirements (not mandatory but valued)

- Previous research work with nanomotors, anisotropic nanoparticles, Pickering emulsions and surface functionalization of nanosystems;
- Experience with multiple particle tracking video microscopy or other related techniques for characterizing particle mobility in aqueous media such as mucus;
- Experience with cell uptake studies and drug permeability studies using cell monolayer models;
- Experience with oral gavage in rats and mice, in vivo/ex vivo near-infrared imaging and type 1 diabetes mellitus mouse/rat models;
- Competitive scientific publication track-record.

#### 7. Evaluation of the applications and publication of the results

The evaluation of the scientific and curricular background of the candidates should focus on the activity of the last five years that the candidate considers most relevant. The five-year period may be extended by the jury, at the candidate's request, when justified by suspension of scientific activity for socially protected reasons, namely for reasons of parental leave, prolonged serious illness, and other situations of unavailability for work that are legally protected.

#### Weight of the different curricular valuation criteria:

- Detailed CV (70%):
  - Evaluation of previous experience in scientific research and practical knowledge of experimental techniques related to the project (60%);



- b. Authorship of original scientific work published in peer-reviewed journals with relevance for the project work plan (10%).
- b) Motivation letter (20%).
- c) Interview – *facultative* (10%).

If the jury decides to obtain further clarifications and additional information about the curricular elements presented, the 3 (three) best candidates classified on the basis of the curriculum may be called for an interview.

Candidates who submit their application incorrectly or fail to meet the required qualifications for this competition will be excluded from admission. The jury reserves the right to request any candidate, in case of doubt, to provide supporting documents for their statements.

False statements made by candidates will be sanctioned in accordance with the law.

The jury will draw up minutes of its meetings, which can be consulted at the candidate's request within 10 working days after the selection results are released.

The jury deliberates by means of a reasoned vote according to the evaluation criteria, with no abstentions allowed, and draws up a list of excluded and admitted candidates, ordered by respective classification. All candidates are notified of the selection results by email. After notification, candidates have 10 working days to comment.

In the 90 days following the deadline for submission of applications, the jury's final decision is communicated to the candidates. Subsequently the institute Director, who is also responsible for the final decision of hiring, will ratify the decision of the jury.

This call is intended exclusively to fill the indicated position on offer and may be canceled before the final ranking list of candidates is ratified by the Director. Accordingly, the position will no longer be available.

### **8. Submission of applications**

Applications must include all the documents proving that they fulfill the admission requirements, namely:

- a) PhD degree in / Copy of certificate or diploma (in PT or EN);
- b) Detailed Curriculum Vitae;
- c) Motivation Letter in English, where it indicates the availability to start duties from 01/09/2025;
- d) License for working with laboratory rodents certified by Portuguese DGAV or equivalent entities (functions A+B+D, former FELASA C);
- e) Other documentation relevant for the evaluation of qualifications.

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The submission of applications is digital, in pdf format, from 11/06/2025 to 03/07/2025, in the following link:

<https://dozer.i3s.up.pt/applicationmanagement/#/addapplications/7067d7c6c32a97fce673a6f4d9a48a9>

#### **9. Start and duration of the contract**

The anticipated start date of the contract is 01/09/2025 and is subject to budget availability. The expected duration is 12 months, eventually extendable depending on performance and funding, and cannot in any case extend beyond the project's end date, currently set for 29/06/2028.

#### **10. Non-discrimination and equal access policy**

i3S actively promotes a policy of non-discrimination and equal access. No applicant shall be privileged, benefited, prejudiced, or deprived of any right or exempted from any duty on the basis of ancestry, age, gender, sexual orientation, marital status, family situation, economic situation, education, origin or social condition, genetic heritage, reduced work capacity, disability, chronic illness, nationality, ethnic origin or race, territory of origin, language, religion, political or ideological beliefs, or trade union membership.

Within the framework of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers, i3S adopts the Open, Transparent and Merit-based (OTM-R) principles for the recruitment of researchers, with the aim of conducting fair and transparent recruitment processes, bringing equal opportunities to all candidates.

#### **11. Applicants with disabilities**

Under the terms of Decree-Law 29/2001, of February 3, the candidate with a disability is given preference in equal ranking, which takes precedence over any other legal preference. Candidates must declare under oath their degree of disability, the type of disability and the means of communication/expression to be used in the selection process, under the terms of the aforementioned decree.