



## 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/i3S/2005/2026**

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 ESTIMATOR - “**Early-Life Stress as a Critical Modulator in Adolescent Vulnerability to Drug use: How early social experiences prime adolescent responses to stress and risk-taking events**”, with reference 2023.17451.ICDT, funded by Fundação para a Ciência e Tecnologia, IP.

**Scientific Area:** Neuroscience

### 1. Project summary and work plan

Cannabis is the most widely used illicit substance worldwide, with increasing consumption among adolescents and rising exposure to high-THC products. Early initiation of use is associated with a higher risk of developing substance use disorders, particularly during adolescence, a critical neurodevelopmental period characterized by heightened brain plasticity and vulnerability to environmental influences. This project aims to investigate how early-life stress shapes neuroimmune and glial responses that influence vulnerability or resilience to cannabis exposure during adolescence. A “two-hit” experimental approach will be used, combining early-life stress (maternal separation) with adolescent exposure to cannabis, in order to model developmental trajectories of risk and protection. Particular attention will be given to peripheral and central immune biomarkers and their role in priming long-term behavioral outcomes related to drug use.

The study will also address sex-related differences, given evidence that males and females may differ in both stress responses and progression to cannabis use disorder. By integrating behavioral, neurobiological, and immunological approaches, this project seeks to improve understanding of the mechanisms underlying addiction vulnerability and identify potential targets for preventive strategies.

### Work Plan:

#### Task 1 – Early-life stress model (first hit): induction and characterization

This task will establish and characterize the early-life stress component of the experimental paradigm. Two maternal separation (MS) protocols will be implemented to generate distinct stress intensities during early development. Maternal separation will begin on postnatal day (PND) 1 and be maintained for 10 consecutive days (PND1–PND10). Two experimental conditions will be used: Low maternal separation (LMS): pups will be separated from the dam for 4 hours per day at a fixed, predictable time. High maternal separation (HMS): pups will be exposed to an unpredictable stress paradigm, including variable separation durations, variable timing, and intermittent days without separation. To determine how early-life stress shapes neuroimmune development, a comprehensive characterization will be performed at the end of the MS period (PND10) and during adolescence (PND45). Analyses will include peripheral and central immune profiling using flow cytometry, immunohistochemistry, and

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proteomic approaches. The prefrontal cortex will be a primary region of interest due to its key role in stress regulation and addiction vulnerability, as well as its known sensitivity to adolescent cannabis exposure.

#### Task 2 – Adolescent cannabis exposure (second hit) and outcome characterization

Following validation of distinct neuroimmune profiles induced by LMS and HMS, animals will be subjected to a second experimental challenge consisting of adolescent exposure to cannabis-derived compounds. Two exposure conditions will be considered to reflect clinically and societally relevant variability in cannabis potency: Low-THC condition and High-THC condition. Cannabinoids will be administered intraperitoneally on a daily basis from PND40 to PND50. Behavioral outcomes will be assessed through an extensive battery designed to evaluate stress reactivity, cognitive performance, reward-related behaviors, and addiction-like phenotypes. Subsequently, the same neuroimmune and molecular analyses performed in Task 1 will be repeated to determine how adolescent cannabis exposure interacts with prior stress history. This will allow the identification of differential vulnerability or resilience profiles resulting from early-life stress exposure.

### **2. Applicable Portuguese legislation**

Decree No. 57/2016, of August 29 – Legal Framework for Scientific Employment (RJEC) – in its current version. Portuguese Labor Code, in its current wording

### **3. Jury**

Chairman: Ana Magalhães; Other Members: Teresa Summavielle, Joana Bravo; Substitutes: João Relvas, Fábio Teixeira

### **4. Workplace**

i3S - Rua de Alfredo Allen, 208 Porto, research group Addiction Biology.

### **5. Professional category and monthly remuneration**

Junior Researcher

€ 2.408,11, 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**

- a) PhD degree in Life and Health Sciences or a related area;
- b) Motivation Letter in English;
- c) Relevant publication record in the field's addiction/psychopharmacology, glial cells and neuroimmune biology.;
- d) Solid hands-on expertise in molecular biology, animal models for addiction/neurodegenerative disorders, flow cytometry, primary glial and neuronal cell cultures and confocal microscopy;
- e) Expert command of bioimaging and dedicated software such as IMARIS;
- f) Course completed in Laboratory Animal Sciences, possessor OR in conditions to apply for the respective License issued by the DGAV for the functions A+B+D or A+D, in accordance with Decree Law 113/2013;



- g) Fluency in written and spoken English;
- h) Contacts of two references - these will only be contacted during the interview stage;
- i) Good teamwork and interpersonal skills;
- j) Immediate availability to start the contract – to be indicated in the motivation letter.

## 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:

- a) Detailed Curricula (70%);
- b) Motivation Letter in English (20 %);
- c) Interview - *facultative* (10%).

If the jury decides to obtain further clarifications and additional information about the curricular elements presented the 2 (two) 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 Life and Health Sciences or a related area / Copy of certificate or diploma;
- b) Detailed Curriculum Vitae;
- c) Motivation letter in English, indicating availability to start work on July 1, 2026;
- d) Certificate of Course completed in Laboratory Animal Sciences OR respective License issued by DGAV for functions A+B+D or A+D, in accordance with Decree Law 113/2013;
- e) Other documentation relevant for the evaluation of qualifications in a related scientific area;
- f) Contacts of two references. These will only be contacted during the interview stage.

The submission of applications is digital, in pdf format, from May 20<sup>th</sup> to June 2<sup>nd</sup>, 2026, in the following link:

<https://dozer.i3s.up.pt/applicationmanagement/#/addapplications/1f54b34ea0b6a4212562f5c7e962a415>

## 9. Start and duration of the contract

The anticipated start date of the contract is July 1<sup>st</sup>, 2026, and is subject to budget availability. The expected contract duration is 12 months, eventually extendable.

## 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.