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_COM/i3S/2705/2025

A competition is open for the recruitment of a PhD holder under an employment contract of uncertain duration to perform research duties within the project **"MiDA-C42 — Microglial Dynamics and Aging: The Critical Role of Cdc42"**, reference COMPETE2030-FEDER00657300, Operation No. 15536, funded by COMPETE2030 and national funds (FCT) under Call no. MPr-2023-12.

Scientific Area: Neuroscience

1. Project summary and work plan

The MiDA-C42 project investigates how the RhoGTPase Cdc42 regulates microglial cytoskeleton dynamics, microglia–synapse interactions, and cognitive performance during brain aging. By leveraging conditional Cre-lox knock-outs, two-photon intravital imaging, quantitative phosphoproteomics (LC-MS/MS), multiparameter flow cytometry, rodent behavioral assays (social interaction, novel-object recognition), and advanced bioinformatics (time-series, wavelet, dynamic-time-warping), the project includes seven interlinked activities over a three-year timeline:

a) **Microglial homeostasis**: Two-photon imaging in Cdc42 conditional knockout mice.
b) **Phosphoproteomic mapping**: Age-dependent microglial signatures by LC-MS/MS and network analysis.
c) **Young adult plasticity**: Microglial response to environmental enrichment in 4–6-week-old mice.
d) **Aged plasticity**: Same assays in 78–80-week-old mice to reveal age-specific changes.
e) **Synaptic remodeling**: Synaptosome phosphoproteomics and single-spine calcium imaging.
f) **Cognitive assays**: Social interaction and novel-object recognition to link microglial Cdc42 status to behavior.
g) **Data integration**: Correlate molecular and behavioral data using time-series analytics and modelling to identify causal phospho-signaling nodes.

The recruited Junior Researcher will spend ~85 % of their effort on wet-lab tasks (mouse colony management, tamoxifen-induced Cre-lox recombination, flow cytometry, proteomics sample preparation, behavioral testing) and ~15 % on data analysis/integration. The position is based at the Glial Cell Biology Laboratory (i3S, Porto) under Dr Renato Socodato's supervision.

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

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fct Fundação para a Ciência e a Tecnologia
GOVERNO DE PORTUGAL
COMPETE 2030

3. Jury
Chairman: Dr Renato Socodato (i3S); Other Members: Dr João Relvas (i3S), Dr Teresa Summavielle (i3S); Substitute: Dr Inês Pinto (i3S)

4. Workplace
i3S – Instituto de Investigação e Inovação em Saúde, Rua de Alfredo Allen 208, 4200-135 Porto, Portugal, in the Glial Cell Biology Laboratory under Dr Renato Socodato's supervision.

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
a) Doctoral degree in Neuroscience, Neuroimmunology, or a closely related life-science field.
b) Animal-research authorisation: FELASA Category C (or equivalent) certificate.
c) DGAV licence: Up-to-date licence from Portugal's Directorate-General for Food and Veterinary (DGAV) authorising experimental procedures in rodent models.
d) Cre-lox/transgenics expertise: Hands-on experience generating and/or working with microglia-specific conditional knock-out mouse lines (e.g., tamoxifen-inducible CX3CR1-CreERT2) and or microglia reporter mice, including colony management, genotyping, induction protocols, and recombination/reporter validation.
e) Flow cytometry: Proven ability to perform and analyse multiparameter flow cytometry of brain immune cells, encompassing CNS tissue dissociation, myeloid marker panel design, data acquisition on ≥8-colour cytometers, quality controls, and computational analyses (e.g., FlowJo, Cytobank, R-based pipelines).
f) Proteomics: Hands-on experience with LC–MS/MS phospho- or proteomics workflows, including protein/peptide extraction, phosphopeptide enrichment (e.g., TiO_2), and preliminary data processing (e.g., MaxQuant, Perseus, or Proteome Discovery).
g) Rodent behavioural assays: Expertise in designing, executing, and analysing cognitive and social tests in mice or rats (e.g., novel-object recognition, three-chamber social interaction, Morris water maze), with proper randomisation, blinding, and statistical treatment.
h) Publication record: A minimum of three (3) first-author research articles (review articles will not be considered) in microglia biology, neuroinflammation, cellular/molecular neuroscience, or related fields, published in peer-reviewed journals.
i) Language proficiency: Fluency in written and spoken English (the project's working language). Knowledge of Portuguese is not mandatory, but will be appreciated.

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j) Interpersonal skills: Demonstrated ability to work effectively in multidisciplinary teams, lead small work packages, and communicate scientific results clearly to diverse audiences.
k) Availability: Capacity to commence full-time employment on 01 July 2025.

Applications lacking proof of any mandatory requirement will be excluded.

Additional preferential skills (not mandatory but valued):

a) Proficiency in high-resolution or live-cell imaging (two-photon, single-spine Ca^{2+} imaging, confocal).
b) Bioinformatics/data-science skills (R/Python, dimensionality-reduction, machine learning).
c) Computational modelling or network-analysis experience (ODE, agent-based, Cytoscape).
d) Participation in international consortia and grant-development activities.
e) Contributions to laboratory management, teaching, or science communication/outreach.
f) Proven success in securing competitive research funding (FCT, Horizon Europe, EMBO, etc.) as a PI.

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 years 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 severe illness, and other situations of unavailability for work that are legally protected.

Weight of the different curricular valuation criteria:

a) Targeted CV (max. 5 pages): 70% weight.
Sub criteria: A1. Publications (35%); A2. Core skills (20%); A3. Mentoring (5%); A4. Additional skills (10%).
b) Motivation Letter in English (1 page): 20% weight.
Sub criteria: B1. Alignment (10%); B2. Structure (5%); B3. Fit (5%).
c) Interview – *facultative* (top 3 candidates): 10% weight.
Sub criteria: C1. Technical depth (5%); C2. Communication (3%); C3. Availability (2%).

If the jury decides to seek further clarification and additional information regarding the curricular elements presented, the three highest-ranked candidates based on the curriculum may be invited for an interview.

Candidates that submit their applications incorrectly or do not meet the required qualifications for this competition will be excluded from admission.

The jury reserves the right to request any candidate to provide supporting documents for their statements in case of doubt.

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

The jury will prepare 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 through a reasoned vote based on the evaluation criteria, with no abstentions permitted, creating a list of excluded and admitted candidates, ordered by their respective classification.

All candidates are notified of the selection results via email. Following the notification, candidates have 10 working days to provide comments.

In the 90 days following the application submission deadline, the jury communicates its final decision to the candidates. Subsequently, the Institute Director, who is also responsible for the final hiring decision, will ratify the jury's decision.

This call is intended exclusively to fill the indicated position on offer and may be canceled before the Director ratifies the final ranking list of candidates. 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 certificate/diploma;
b) Targeted CV (max. 5 pages, Arial 11, single-spaced, 2.5 cm margins, covering 2020→present under A1–A4);
c) Motivation letter (max. 1 page, same formatting, English);
d) FELASA C (or equivalent) certificate;
e) DGAV licence;
f) Proof of proficiency in Cre-lox, flow cytometry, proteomics, behavioural assays (publications, reports, certificates);
g) Two reference contacts (name, institution, email, phone) – letters may be requested if the jury deems necessary;
h) Optional: supporting documents for preferential skills.

Applications must be submitted digitally in PDF format from 27/05/2025 to 09/06/2025 (to be filled by HR) using the following link:

https://dozer.i3s.up.pt/applicationmanagement/#/addapplications/fa24a7127ace17fc72e33903155fa1c

9. Start and duration of the contract

The anticipated start date of the contract is 16/07/2025, subject to budget availability. The expected duration is 12 months, renewable once for up to 12 months (maximum of 24 months), contingent upon performance and funding.

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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 based on 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 recruiting researchers, aiming to conduct fair and transparent recruitment processes that provide equal opportunities to all candidates.

11. Applicants with disabilities

Under the terms of Decree-Law 29/2001, of February 3, candidates with disabilities are given preference when equally ranked, which takes precedence over any other legal preference. Candidates must declare under oath their degree of disability, type of disability, and the means of communication or expression to be used in the selection process, as outlined in the aforementioned decree.

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