One (1) PhD candidate position in

PANDORA project

Doctoral network on discovering pathomechanisms and novel drug optimization for AMD

(Call: HORIZON-MSCA-2025-DN-01, GA 101312030)
Funded under HORIZON-TMA-MSCA-DN - HORIZON TMA MSCA Doctoral Networks

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The Institute of Electronic Structure and Laser of the Foundation for Research and Technology Hellas (IESL - FORTH), in the framework of the project PANDORA (Call: HORIZON-MSCA-2025-DN-01, GA 101312030) which is a Marie Skłodowska-Curie Action funded under HORIZON TMA MSCA Doctoral Networks, is seeking to recruit a PhD candidate position.

Job Description
Discovering pathomechanisms and novel drug optimization for AMD (DC7).

Defining molecular biomarkers of complement-mediated AMD via multimodal imaging. We are seeking a highly motivated and intellectually curious PhD student to work on a project investigating diagnostic therapeutic approaches in AMD disease models. The PhD student will:

- work at the Laboratory for Biophotonics and Molecular Imaging (LBMI), Institute of Electronic Structure and Laser (IESL), FORTH, using the novel hybrid microscope developed at FORTH for multimodal, multiparametric imaging of molecular biomarkers in different AMD models. The microscope combines optoacoustic (OAM), two-photon excitation fluorescence (TPEF), second harmonic generation (SHG) and coherent Raman microscopy in one system enabling the label-free detection of several biomarkers simultaneously: choroid thickness, collagen deposits, lipofuscin concentration, complement system protein dysfunction and mitophagy deregulation.

- develop, optimize and implement the appropriate detection protocols to visualize biomarkers of retinal degeneration at an early stage of disease for 3D models, such as ex vivo porcine retinal cultures and iPSC-derived retinal organoids.

- investigate the role of complement system protein cascades and metabolic dysfunctions (e.g. autophagy/mitophagy) in AMD and other diseases with ocular manifestations.

- use the instrument to study therapeutic response to novel drugs by monitoring delivery and biodistribution in animal and non-animal tissue samples. The final step of the project involves a small proof of concept in vivo study to image the retina through the eye. Within PANDORA, therapies under investigation across the network include complement inhibition, antioxidants, anti-inflammatory drugs

and mitochondria modulators, with results feeding into new diagnostic and therapeutic paradigms for AMD.

The PhD candidate will join a network of European experts spanning gene therapy, pharmacology, bioinformatics, disease modelling and imaging, with opportunities for secondments (lab exchanges) at partner institutions. Key Responsibilities Develop and optimisation of protocols and detailed guidelines for multimodal imaging procedures in retinal explants and retinal organoids. Develop and maintain a database of AMD-related biomarkers that can be detected and visualized with multimodality microscopy. Perform imaging of retinal tissue using the multimodal microscope Perform quantitative image processing, analysis and interpretation of multimodal datasets. Correlate imaging biomarkers to multiomics biomarkers, therapeutic delivery and response. Investigate therapeutic delivery, biodistribution and treatment response using multimodal imaging. Contribute to scientific publications, conference presentations, network activities, training events and research secondments.

Laboratory Overview: The Laboratory for Biophotonics and Molecular Imaging (LBMI) develops and applies advanced photonic technologies for imaging biological targets and living systems, from the subcellular to the whole-organism level. Operating at the interface of Physics, Engineering, Mathematics, Biology, Medicine and Computer Science, the lab integrates imaging technology development across scales (from microscopy to mesoscopy and macroscopy) with theory, computational modelling, and biomedical application. Through both applied and fundamental research, the lab advances new photonic devices, concepts and theory to deepen understanding of light–tissue interactions and the biological processes underlying health and disease, with applications spanning biomedicine, biotechnology and theranostics.

Required qualifications

- Hands-on experience with cell and/or tissue culture techniques (20%).
- Experience with microscopy and/or bioimaging techniques, including basic image analysis (20%).
- Strong interest in retinal biology, neurobiology, and biomedical imaging (10%).
- Strong problem-solving skills and ability to work in multidisciplinary, international teams (10%).
- Willingness to undergo training/certification for animal handling and in vivo procedures (5%).
- Excellent command of written and spoken English (5%).

Desirable qualifications

- Background or coursework in complement biology, autophagy/mitophagy, or retinal degeneration (5%).
- Experience with iPSC-derived organoid culture or ex vivo tissue models (10%).
- Prior exposure to drug delivery/biodistribution studies (5%).
- Familiarity with optical/optoacoustic imaging systems (TPEF, SHG, Raman, optoacoustic microscopy) (5%).
- Experience with quantitative image analysis software (ImageJ/Fiji, Python) (5%).

Location: IESL-FORTH, Heraklion Crete GREECE
Start Date (earliest): January 1st, 2027
Project Duration: 36 Months
Budget: approx. 3.440,91 euro (gross) + family allowance (if the candidate is eligible)

Application Submission

Interested candidates who meet the aforementioned requirements are kindly asked to submit their applications, no later than **November 15th 2026, 23:59 local Greece time** to the address (hr@iesl.forth.gr), with cc to the Scientific Coordinator Dr. Giannis Zaharakis (zahari@iesl.forth.gr & mavridimaria@iesl.forth.gr).

Eligibility criteria

The applicant: Shall not have resided or carried out their main activity (work, studies etc.) in Greece for more than 12 in the 36 months immediately before the recruitment date (unless part of a compulsory national service or a procedure for obtaining refugee status under the Geneva Convention). Shall not already be in possession of doctoral degree (*). Can be of any nationality. *Researchers who have successfully defended their doctoral thesis, but who have not yet formally been awarded the doctoral degree will not be considered eligible. Selection process Doctoral candidates will be selected on scientific qualification and experience, research interest, additional knowledge/skills and their motivations to participate in an intersectoral research-training program.

In order to be considered, the application must include:

- Application Form (please download file from the job announcement webpage https://www.iesl.forth.gr/en/jobs-bids/jobs/job-positions)
- Brief CV
- Scanned copies of academic titles

Any application received after the deadline will not be considered for the selection

Contact

For information and questions regarding the application and selection procedure, candidates are asked to contact the secretariat (hr@iesl.forth.gr), tel. +30 2810-391314 & +30281-391300.
For information and questions about the advertised position and the research activity of the group or the institute, please contact Dr. Giannis Zaharakis (zahari@iesl.forth.gr & mavridimaria@iesl.forth.gr), tel. +30 2810-391922 & 2810-391482.

Selection Announcement

The result of the selection will be announced on the website of IESL-FORTH.
Candidates have the right to appeal the selection decision, by addressing their written objection to the IESL secretariat within five (5) days since the results announcement on the web. They also have the right to access (a) the files of the candidates as well as (b) the table of candidates' scores (ranking of candidates results). All the above information related to the selection procedure will be available at the secretariat of IESL-FORTH in line with the Hellenic Data Protection Authority.

GDPR

FORTH is compliant with all legal procedures for the processing of personal data as defined by the **Regulation EU/2016/679 on the protection of natural persons with regard to the processing of personal data.**
FORTH processes the personal data and relevant supporting documents that you have submitted to us. Processing of that data is carried out exclusively for the needs and purposes of this specific call. Such data shall not be transmitted to or communicated to any third party unless required by law.
FORTH retains the above data up to the announcement of the final results of the call, unless further process and reservation is required by law or for purposes of exercise, enforcement, prosecution of certain one's legitimate legal rights' as defined in the Regulation EU/2016/679 and/or in national law.
We inform you that under the **Regulation EU/2016/679** you have the rights to be informed about your personal data, access to, rectification and erasure, restrictions of process and objection to as provided by applicable regulation and national laws.
We acknowledge also to you, that you have the right to file a complaint to the national Data Protection Authority. For any further information regarding exercise of your personal data protection rights, you may contact the Data Protection Officer at FORTH at dpo@admin.forth.gr.
You have the right to withdraw your application and consent for the processing of your personal data at any time. We inform you that, in this case, FORTH shall destroy such documents and/or supporting documents submitted and shall delete the related personal data.