

Marie Curie Postdoctoral Fellowship Opportunity in retinal degenerative diseases and advanced-based models

Host Institution

[University of Coimbra](#)

Department

Faculty of Medicine/ [Coimbra Institute for the Clinical and Biomedical Research \(iCBR\)](#)

Supervisor:

Dr Rosa Fernandes

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About the Opportunity

Dr. Rosa Fernandes, Principal Investigator at the Faculty of Medicine of the University of Coimbra and integrated researcher at iCBR, is seeking highly motivated postdoctoral candidates interested in applying for a Marie Skłodowska-Curie Postdoctoral Fellowship under the Horizon Europe program (MSCA-PF).

We welcome outstanding researchers interested in developing ambitious and innovative projects in retinal degenerative diseases, advanced human-based models, extracellular vesicles, and translational ophthalmology.

This fellowship provides a unique opportunity to join a multidisciplinary and collaborative environment integrating fundamental, translational, and clinical research in ophthalmology.

Research Areas and Keywords

- Retinal degenerative diseases
- Age-related macular degeneration (AMD)
- Diabetic retinopathy (DR)
- Blood-retinal barrier (BRB)
- Extracellular vesicles
- Ocular biomarkers and tear fluid analysis
- Retina-on-a-chip
- Precision medicine and translational ophthalmology
- Molecular and cellular mechanisms of disease

Research Environment

The University of Coimbra is one of the Europe's oldest universities and a leading Portuguese institution in research and innovation. Its scientific ecosystem combines excellence in biomedical research, clinical translation, engineering and advanced technologies.

The Faculty of Medicine and iCBR foster close interaction between basic scientists, clinicians, and biomedical engineers through strong collaboration with the Unidade Local de Saúde de Coimbra. This environment enables the development of clinically relevant and translational research projects.

The host group benefits from access to state-of-the-art facilities and platforms, including:

- Advanced retinal imaging and function assessment systems
- Bioimaging and confocal microscopy platforms
- Cell culture facilities
- Molecular and cellular biology laboratories
- Extracellular vesicle characterization technologies
- Access to clinical samples and ophthalmology patient cohorts

Research in vision sciences and possible direction

The host group is particularly interested in supporting projects focused on one or more of the following areas:

- **Advanced Human-Based Retinal Models**

Development of complex 3D retinal models, retina-on-chip systems, and microphysiological platforms to better understand disease mechanisms and accelerate therapeutic discovery.

- **Blood-Retinal Barrier Dysfunction**

Investigation of molecular and cellular mechanisms involved in blood-retinal barrier disruption in retinal degenerative diseases.

- **Extracellular Vesicles and Nanotherapeutics**

Engineering and functional characterization of extracellular vesicles as therapeutic tools and drug delivery systems for retinal diseases.

- **Ocular Biomarkers and Tear Fluid Research**

Identification of non-invasive biomarkers using tear fluid, extracellular vesicles, multi-omics approaches, and AI-assisted data integration for precision ophthalmology.

- **Translational and Precision Ophthalmology**

Projects integrating clinical relevance, advanced imaging, molecular profiling, and innovative therapeutic strategies.

Interdisciplinary proposals combining biology, engineering, bioinformatics, AI, biomaterials, microfluidics, or nanomedicine are particularly encouraged.

About the Supervisor

Dr. Rosa Fernandes is a Principal Investigator at FMUC/iCBR at the [Retinal Dysfunction and Neuroinflammation Lab](#) leading the team [Ocular barriers and innovative therapies for eye diseases and cancer](#), focused on retinal degenerative diseases with a particular emphasis on inflammation, blood-retinal barrier dysfunction, extracellular vesicles, and advanced therapeutic strategies.

Her research combines in vitro, ex vivo, in vivo, and human biological sample-based approaches, with strong translational integration through close collaboration with ophthalmologists.

Current research interests include:

- Outer blood-retinal barrier dysfunction
- Extracellular vesicle-mediated retinal communication
- Retina-on-chip and microphysiological systems
- Tear fluid biomarkers and ocular multi-omics
- Nanomedicine and targeted therapies

Dr. Fernandes has coordinated and participated in multiple national and international research projects and has authored more than 150 scientific publications and communications.

Institutional Support

The University of Coimbra provides institutional support for MSCA Postdoctoral Fellowship applicants through dedicated research management and grant support services, including proposal development guidance and administrative assistance.

[University of Coimbra MSCA Support](#)

Eligibility Criteria

Applicants must comply with the eligibility rules established by the MSCA Postdoctoral Fellowship call

Please consult the official MSCA call documentation for complete eligibility conditions at [Marie Skłodowska-Curie Actions](#)

How to Apply

Interested candidates should send:

- A CV (maximum 4 pages)
- A one-page motivation letter
- A brief research proposal (1–2 pages) aligned with the host group’s research interests

Applications should be sent by email to:

rfernandes@fmed.uc.pt

Please include “MSCA-PF Application” in the email subject line.

Candidates will be contacted for an online discussion regarding project development and MSCA proposal preparation.