

Position for Early Stage Researcher (36 months)

Title: Molecular mechanisms of neuroprotection in retinal degeneration

Team / project description:

Head: Prof. Marius Ueffing

The group of Marius Ueffing is hiring a pre-doctoral scientist to work on molecular mechanisms of neuroprotection in the context of retinal degeneration. The project will be conducted partly in Tuebingen, Germany and partly at the Helmholtz Centre in Munich, Germany.

Retinal degenerative processes are caused by either single mutations or complex traits and are additionally triggered by environmental factors, such as life style habits and age. The irreversible outcome of retinal degeneration is blindness. Therefore we seek to establish and molecularly understand neuroprotective processes that counteract degeneration. Since the main glial cells of the retina (Muller cells) are recognized to produce neuroprotective factors and balance tissue homeostatis, they are regarded key cells for modulation of the neurodegenerative/neuroprotective processes. The focus of the project will be to understand and finally influence the Muller cell reactivity such that prolonged survival of retinal neurons is achieved. Plasticity of retinal Muller cells will be studied in an integrated way utilizing system-wide non-biased approaches such as quantitative transcriptomic as well as proteomic analyses (Affymetrix, Illumina; OrbiTrap Mass-Spectrometry, SILAC labelling) on in vitro cell systems relevant for the retina. Identified molecular pathways will then be studied with life cell imaging setups suitable for the mouse eye in selected mutant reporter mice (hGFAP-eGFP, Thy1-XFP, GLAST-venus, GLAST-tomato) to directly visualise glial and neuronal network activities in vivo.

This system-wide approach will lead to a more integrated understanding of neuroprotective pathways and the cross-talk between glial cells and neurons in the retina, with implications for developing novel therapeutic strategies against blinding diseases.

Methods:

- Identification of neuroprotective molecules from retinal Muller glial cells with latest quantitative mass spectrometric and transcriptomic technologies
- Molecular pathway analyses in response to stimulation of primary cells with the identified molecules
- Translation of the in vitro findings to the retina in situ and in vivo by life imaging techniques and electrophysical recordings

Candidate profile:

Broad knowledge of biochemical, molecular and cellular biology is required, experience in mouse work is an advantage and genuine interest in an academic career is a must. MSc or equivalent degree in biology, biochemistry or a related discipline with an overall grade of at least "good". The candidate should be highly motivated and fluent in English. The successful candidate is eligible for the graduate program in Cellular & Molecular Neuroscience at the University of Tübingen (<http://www.neuroschool-tuebingen.de/>) which offers an interdisciplinary program of additional practical seminars and soft skill training.



*Innovative Techniques and Models
to Study **Glia-Neuron** Interactions*

Contact:

Please send your application per email with the relevant documentation (CV, certificates, two letters of references) to mu.utub@eduglia.eu.

You will find more details on our project website: <http://www.eduglia.eu>



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:: Description

FENS invites all laboratories, institutes or companies with vacancies to send in a job description.

The Job Market website presents an overview of available jobs for PhD students, post-docs, up to senior staff positions and professorships. This service is free to all neuroscientists.

FENS members receive a monthly e-mail alert with a short description of new jobs.

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Job details

Job #23281, added on 01/08/10, 12:44:20

Job Information

Ph.D. Student in Tuebingen/Germany
 Starting date: 2010-03-01
 Application deadline: n/a
 Duration: 3 years
 Institution: University of Tuebingen
 Department: Institute for Ophthalmic Research

Contact Information

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Job Description

We invite applications for a Ph.D. Student position being part of the Marie Curie Initial Training Network Edu-GLIA (<http://www.eduglia.eu>), funded by the European Commission.

The project supervised by Prof. Ueffing will be conducted partly in Tuebingen and partly at the Helmholtz Centre in Munich. We seek to establish and molecularly understand neuroprotective processes that counteract retinal degeneration. Muller cells, the main glial cells of the retina, are regarded as key cells for modulation of neurodegenerative/-protective processes. The project aims to understand and influence Muller cell reactivity such that prolonged survival of retinal neurons is achieved. Plasticity of retinal Muller cells will be studied in an integrated way utilizing system-wide non-biased approaches such as quantitative transcriptomic as well as proteomic analyses on in vitro cell systems relevant for the retina. Identified molecular pathways will then be studied with life cell imaging setups in selected mutant reporter mice to directly visualise glial and neuronal network activities in vivo.

Your qualifications:

- Broad knowledge of biochemical, molecular and cellular biology
- Experience in mouse work is an advantage and genuine interest in an academic career is a must
- MSc or equivalent degree in biology, biochemistry or a related discipline with an overall grade of at least "good"
- Fluency in English

Eligibility criteria:

- Candidates
- Can be nationals of any country other than that of the host institution
 - Must not have resided/carried out their main activity in the country of the host institution for more than 12 months in the 3 years immediately prior to the

recruitment

- Should not possess a Ph.D.
- Should have less than 4 years of research experience after graduation with a degree allowing to start a Ph.D. thesis

Please send your application with the relevant documentation (CV, certificates, two letters of reference) by email to mu.utub@eduglia.eu

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