Ciências ULisboa
Faculdade de Ciências da Universidade de Lisboa

ERASMUS+ TRAINEESHIP / PLACEMENT OFFER

Project title: A role for astrocytes in VPAC1 receptor-mediated modulation of GABAergic transmission and synaptic plasticity by VIP?

Project description:

Vasoactive intestinal peptide (VIP) released during synaptic plasticity induction acts on VPAC1 receptors to influence hippocampal LTP by control of inhibition. It is expressed only in GABAergic interneurons and controls GABA release through activation of VPAC1 and VPAC2 receptors. Astrocytes can influence synaptic GABA availability and are activated by synaptic GABA, thus enhancing intracellular Ca2+ through several signaling pathways. This may trigger the release of gliotransmitters (including neuropeptides) and modulate LTP induction and expression. Astrocytes express both VPAC1 and VPAC2 receptors but their role in VIP modulation of GABAergic transmission and synaptic GABA availability or astroglial responses to GABA stimuli was never investigated.
This project will use hippocampal astrocyte cultures to investigate: 1) The influence of VPAC receptors on astroglial GABA uptake; 2) The astrocytic Ca2+ responses to transient GABA stimuli; 3) the presence of VIP, VPAC1 and VPAC2 receptors in astrocyte cultures as accessed by immunocytochemistry.
The influence of VPAC1 and VPAC2 receptors on astroglial GABA uptake kinetics will be studied as previously described3, using selective ligands for VPAC receptors.
Astrocytic Ca2+ responses to transient GABA stimuli will be monitored using the Ca2+-sensitive probes. Astrocytic VIP, VPAC1 and VPAC2 receptors will be detected by ICC.
Proposal designed for MSc thesis project (min. 6 months). Contact supervisor for other opportunities.

Department: Chemistry and Biochemistry

R&D Unit: BioISI (Epilepsy and Aging Lab, GER)

Field of study: Neurochemistry, Neurobiology, Biochemistry, Synaptic Physiology

Supervisor: Diana Cunha-Reis **Personal webpage:** https://ciencias.ulisboa.pt/perfil/dcreis

Number of weeks offered: 24-32 **Within the months:** from November to July

Number of working hours per week: 35

Publication date: 01 / 11 / 2023 **Closing date:** 31 / 01 / 2023

Requirements

General:

- A very good academic record;
- Good writing and presentation skills;
- Good social and organisational skills;
- Very good proficiency in spoken and written English; knowledge of Portuguese language is an asset.

Specific:

- Level of education: Bachelor's degree in Biochemistry, Biology and akin areas;
- Previous experience with mentioned techniques and nervous system will be valued but not required.;
- _____.

Applications

Applications should include the following information:

- a cover letter, including a description of your research interests and an explanation for why you are applying for this project;
- a curriculum vitae (CV);
- an official transcript of grades issued by your home institution;

and be submitted no later than 31 / 01 / 2023 via email to internacional@ciencias.ulisboa.pt.

Contacts

For inquiries regarding this project you are welcome to contact: dcreis@ciencias.ulisboa.pt.

For inquiries regarding the application procedure you are welcome to contact: internacional@ciencias.ulisboa.pt.