

Looking for a motivated Master student to work in a very friendly team on the research project:

TESTING THE MEMBRANE PACEMAKER HYPOTHESIS ACCORDING TO EARLY-LIFE CONDITIONS IN A SMALL HETEROTHERM

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Project outlines:

The 'membrane pacemaker' hypothesis states that variations in basal metabolic rate and lifespan among species is controlled by the physical characteristics of cell membranes. Saturated and monounsaturated fatty acids are very more resistant to peroxidative damage, while polyunsaturated fatty acids are more prone to peroxidation. This characteristic of membrane phospholipids (PL) would notably explain different longevities between species. Within species, there are also situations in which extended longevity is associated with membrane lipid composition favouring lower peroxidation, i.e., membranes with lower unsaturation. In heterotherms, the state of torpor -characterized by reduced metabolism and body temperature- is associated with changes in lipid composition of tissues and membranes within the organism. Specifically, heterotherms increase membrane unsaturation, notably via the retention of omega-6 fatty acids, in forecast to periods of higher expression of torpor.

This project will aim at determining the potential links between **torpor expression**, **mitochondrial activity**, **membrane lipid composition**, and **oxidative damage** in garden dormice (*Eliomys quercinus*) according to life-long effects of early-life torpor phenotype.

Tasks during the Master project: Assess membrane lipid composition by gas-liquid chromatography, and determine mitochondrial enzyme (Cox) activity and oxidative markers in various tissues of interest (e.g., liver, brown adipose, muscle, and heart).

Duration of experiments & analyses: 6-8 months

Anticipated project start: flexible but not later than January 2023

The applicant should have a good background in animal biology/physiology and the willingness to learn new techniques, e.g., biochemistry methods. Previous experience with lab practices and statistics using R software are required. If you are interested, please contact us as soon as possible by sending a CV via E-mail.