

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

EFFECT OF TORPOR USE DURING DEVELOPMENT ON SEASONAL DYNAMICS OF TELOMERE LENGTH IN A HIBERNATING RODENT

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Project outlines:

The strategy of **heterothermy** (daily torpor and hibernation) allows individuals to save energy and to survive periods of energetic bottlenecks. In particular, the use of torpor helps young individuals to match energetic requirements during development and fattening in preparation to winter. The use of heterothermy have also been associated with the **slowing of ageing processes**, i.e., the prioritization of somatic maintenance, and the **increase of longevity**. A marker of **somatic maintenance** is the rate of change in **telomere length**. Telomeres are non-coding, repetitive sequences of DNA at the end-cap of chromosomes, which prevent the degradation of coding DNA during replication. In particular, **telomere dynamics** have been shown to be positively affected by opportunistic use of **short bouts of (daily) torpor** and negatively impacted during **hibernation**, i.e., long torpor episodes interspaced by periodic euthermic phases of few hours during winter. Further, telomere length **varies seasonally**, and on average decreases in subadult but increases in adult heterothermic individuals. **To date, the seasonal changes of telomere length in relation to torpor use during development, a life-stage associated with accelerated telomere erosion, has never been investigated, nor its consequences for seasonal telomere dynamics during adulthood.** The garden dormouse (*Eliomys quercinus*), a small hibernating rodent, shows strong seasonal changes in the use of torpor according to food availability and social housing.

In this study, we therefore aim at:

- Determining the seasonal changes of telomere length in relation to torpor patterns in young and subadult dormice.
- Determine the effect of torpor use by young dormice during development on seasonal telomere dynamics later in life, i.e., during adulthood.

Experimental schedule: June 2021 to May 2022

The applicant should have a good background in animal biology/physiology and the willingness to learn new techniques, e.g., genetic 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.