

# BDR SEMINAR (Kobe & online hybrid)

## Siniša Hrvatin

Whitehead Institute, USA

**Tuesday, March 26, 2024**

11:00-12:00

1F Auditorium, DB Building C, Kobe / Broadcast online via Zoom

Zoom meeting URL will be announced on the event day by e-mail.

※This seminar is open only to BDR members

## A torpor-like state (TLS) in mice slows blood epigenetic aging and prolongs healthspan

This seminar is a part of the QMIN project seminar series.

### Summary

Torpor and hibernation are extreme physiological adaptations of homeotherms associated with pro-longevity effects. Yet the underlying mechanisms of how torpor affects aging, and whether hypothermic and hypometabolic states can be induced to slow aging and increase health span, remain unknown. We demonstrate that the activity of a spatially defined neuronal population in the avMLPA, which has previously been identified as a torpor-regulating brain region, is sufficient to induce a torpor like state (TLS) in mice. Prolonged induction of TLS slows epigenetic aging across multiple tissues and improves health span. We isolate the effects of decreased metabolic rate, long-term caloric restriction, and decreased body temperature on blood epigenetic aging and find that the pro-longevity effect of torpor-like states is mediated by decreased body temperature. Taken together, our findings provide novel mechanistic insight into the pro-longevity effects of torpor and hibernation and support the growing body of evidence that body temperature is an important mediator of aging processes.



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