

264th WPI-IIIS Seminar

Torpor and the brain: How hypometabolic states challenge our understanding of behaviour, vigilance and sleep

Torpor is a naturally occurring state of hypometabolism with promising translational potential, from emergency medicine and neuroprotection to organ preservation and space exploration. While our knowledge of the brain circuits responsible for torpor is growing rapidly, remarkably little is known about the effects of hypometabolism on the brain. In this seminar, I will present our recent work combining electrophysiology, behavioural analysis, circuit neuroscience and molecular approaches in mice and Djungarian hamsters to characterise brain activity during hypometabolic states. I will discuss how spontaneous and induced torpor reshape neuronal activity, sensory processing and synaptic plasticity, and how these findings challenge our current understanding of brain states and the regulation of sleep.



Dr. Vladyslav Vyazovskiy

Department of Physiology, Anatomy and Genetics

University of Oxford

Date: **Wednesday, September 30, 2026**

Time: **9:00 – 10:00**

Venue: **1F Auditorium, IIIS Building**

*** On-site participation only**



Contact: International Institute for Integrative Sleep Medicine, University of Tsukuba
029-853-5859 (ext.5859) | wpi-iiis-alliance@ml.cc.tsukuba.ac.jp