



INVITATION

To a Seminar organised by the initiative of the Group of PhD Students and Young Scientists of the Centre of Experimental Medicine, SAS

on

NEUROCOGNITIVE MECHANISMS OF SEMANTIC MEMORY

Lecturer

Mgr. Adam Kubinec

From

The Institute of Normal and Pathological Physiology,
CEM SAS

Tuesday 18.4.2023, 13:00
6th floor, block A, room 7.29

HYBRID FORMAT

We are looking forward to your participation!



PROGRAM OVERVIEW

13:00 – 13:05	Introduction
13:05 – 13:20	Presentation
13:20 – 13:30	Discussion

For ONLINE Attendance:

Join Zoom Meeting

<https://us02web.zoom.us/j/82706415209?pwd=Y29DMDR6cXljalVRWm4zWEU5czgvZz09>

Meeting ID: **827 0641 5209**

Passcode: **UM8Ngr**



ANNOTATION

NEUROCOGNITIVE MECHANISMS OF SEMANTIC MEMORY

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Semantic memory is important for encoding, storing, and recalling knowledge, and thus for forming concepts and understanding language. Effective handling of information from semantic memory is crucial for the ability to use, manipulate and generalize knowledge that people acquire throughout their lives (Kumar, 2021). The current model assumes that semantic cognition consists of two interacting systems: a semantic representation system and a semantic control system, such a model is also referred to as the Controlled Semantic Cognition framework. Semantic representation encodes conceptual representations of words and concepts, by learning relationships between different information already stored in semantic memory. The second system is semantic control, which executively regulates activation in the representational system to generate inferences and behaviors that are appropriate for the current situation or task (Jefferies et al., 2020; Ralph et al., 2017).

The main goal of our research is to validate and extend current perspectives on semantic cognition (e.g., Jefferies et al., 2020; Ralph et al., 2017), exploring and describing the underlying neurocognitive mechanisms that underlie the ability to retrieve, executive control, and access conceptual representations. We will examine the functional role of prefrontal and temporal cortical brain regions in semantic processes using non-invasive brain electrical stimulation (tES). We will also focus on the modulation of relevant neurobiological systems that underlie semantic memory information processing and its control (e.g., the role of the central noradrenergic system, and stress hormones).

Jefferies, E., Thompson, H., Cornelissen, P., & Smallwood, J. (2020). The neurocognitive basis of knowledge about object identity and events: dissociations reflect opposing effects of semantic coherence and control. *Philosophical Transactions of the Royal Society B*, 375(1791). <https://doi.org/10.1098/RSTB.2019.0300>

Kumar, A. A. (2021). Semantic memory: A review of methods, models, and current challenges. *Psychonomic Bulletin & Review*, 28(1), 40–80. <https://doi.org/10.3758/s13423-020-01792-x>

Ralph, M. A. L., Jefferies, E., Patterson, K., & Rogers, T. T. (2017). The neural and computational bases of semantic cognition. <https://doi.org/10.1038/nrn.2016.150>