



Contribution ID: 3

Type: **not specified**

The hippocampus: facts and myths

Monday 11 March 2024 13:30 (1 hour)

The hippocampus is a complex and architectonically heterogeneous structure located in the medial temporal lobe. It can be divided into several regions and subregions, each with distinct anatomical and functional characteristics, and has been subject of research for many centuries, its first description dating as far back as the late 16th century. The last years have seen a steady increase in the number of studies applying AI techniques, including machine learning and image analysis, to analyze complex data sets related to brain cytoarchitecture, in ways that can be challenging for traditional methods. While such AI methods enhance our ability to extract valuable insights from complex brain data, it's important to note they can only accelerate our understanding of the brain when the results are interpreted in the framework of domain-specific knowledge, i.e., of neuroanatomical expertise.

The bulk of literature on the hippocampus is enormous, and unfortunately peppered with false statements, such as the fact that it is allegedly a subcortical structure, directly abuts the neocortex, or constitutes the brain's "memory center". Surprisingly, some of these false statements are truly widespread!

At the end of this session you will have acquired basic knowledge concerning hippocampal cytoarchitecture: the main cell types of which it is composed and the layers they build. You will learn how hippocampal macroanatomy changes through brain development, resulting in the two interlocking "Cs" typical of cell body-stained coronal sections. You will also hear about the regions into which it can be divided, and why the intricacy of anatomical language has resulted in differences of opinion and discussions concerning their number. Finally, since the use of incorrect anatomical terminology results in a muddying of the waters rather than shedding light on shed light on hippocampal (or any other brain region) structure-function relationships, I will provide you with an overview of published misconceptions to ensure that with your research you do not contribute to their perpetuation.

Presenter: Prof. PALOMERO-GALLAGHER, Nicola (Institute for Neuroscience and Medicine, INM-1, Forschungszentrum Jülich)