YoDA Lecture

Friday 25 November 2022
11:00 – 12:00

Location: 1162-013

Elena Pérez-Montoyo

PhD Student at Institute of Neuroscience, Alicante, Spain

Memory encoding and brain-wide functional connectivity is controlled by dentate gyrus parvalbumin interneurons

Distinct forms of memory processing are often causally identified with specific brain regions, but a key facet of memory processing includes linking separated neuronal populations. Using cell-specific manipulations of inhibitory neuronal activity, combined with electrophysiological, imaging and behavioural techniques, we found that parvalbumin (PV) interneurons in the dentate gyrus control brain-wide functional connectivity, the formation of correlated c-Fos+ cell networks between the hippocampus, prefrontal cortex and nucleus accumbens, and the encoding of memory, without affecting synaptic plasticity, dendritic integration, or the size of the activated cell assemblies. Together, these data suggest a critical regulatory role of dentate gyrus PV interneurons in coordinating dispersed neuronal populations during memory formation, enabling or precluding polysynaptic communication channels and the association of cell assemblies across multiple brain regions.

Host: Assistant Prof. Andrea Moreno (Nabavi group)

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