



Talks by rising stars of neuroscience

Anatomical and functional characterization of the neuronal circuits underlying ejaculation

Constanze Lenschow - Lima lab

(Champalimaud Centre for the Unknown)

During sexual behavior, copulation related sensory information and modulatory signals from the brain must be integrated and converted into the motor and secretory outputs that characterize ejaculation (Lenschow and Lima, Current Opinion in Neurobiology, 2020). Studies in humans and rats suggest the existence of interneurons in the lumbar spinal cord that mediates that step: the spinal ejaculation generator (SEG). My work aimed at gaining mechanistic insights about the neuronal circuits controlling ejaculation thereby applying cutting-edge techniques. More specifically, we mapped anatomically and functionally the spinal circuit for ejaculation starting from the main muscle being involved in sperm expulsion: the bulbospongiosus muscle (BSM). Combining viral tracing strategies with electrophysiology, we specifically show that the BSM motoneurons receive direct synaptic input from a group of interneurons located in between lumbar segment 2 and 3 and expressing the peptide galanin. Electrically and optogenetically activating the galanin positive cells (the SEG) lead to the activation of the motoneurons innervating the BSM and the muscle itself. Finally, inhibition of SEG cells using DREADDs (Designer Receptors Exclusively Activated by Designer Drugs) in sexual behaving animals is currently conducted to reveal whether ejaculation can be prevented.

Event link:

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