

Invitation to the talk

High Frequency Electric Field modulation of Neuronal Activity

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Seminar room Physiology (HA05 P51)

Vetmeduni, Veterinärplatz 1, 1210 Vienna

ABSTRACT: Spinal and supraspinal neural circuits of the lower urinary tract

Detrusor-sphincter-dyssynergia (DSD) is a serious pathophysiological condition that impairs or prevents voluntary voiding. It results from a spinal cord injury (SCI), which causes a disruption between the lumbar segments of the spinal cord and the brainstem. Currently, there are no radical clinical treatments for DSD; therefore, a detailed characterization of the spinal neuronal circuits involved in lower urinary tract (LUT) control is necessary. In recent years, we have extensively studied the LUT neural network using in vivo and in vitro electrophysiology, immunolabeling of specific neuron types, retrograde and anterograde tracing of neural circuits, as well as transgenic animals combined with optogenetics. We characterized the structural organization of specific neuronal groups in the spinal cord and brainstem; sexual dimorphism of the LUT network along with post-SCI structural and functional spinal circuit changes. We also identified the location and connections of spinal and supraspinal excitatory and inhibitory neurons involved in LUT regulation. These advancements in the knowledge of the LUT neural circuits will be discussed in my talk.

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