

ASHBi SEMINAR

Functional and Comparative Neuroanatomy of Interoception

Lecturer: **Henry Evrard, Ph.D.**

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Date **Wednesday, 19 April 2023**

Time **9:30 – 10:30 [JST]**

Venue **Seminar Room Onsite Only***

1F, Faculty of Medicine Bldg. B

*Register via the right QR code



Abstract

The brain evolved around the fundamental homeostatic needs of our organism. Therefore unsurprisingly, sensory afferents representing the physiological condition of the body (or interoception) profoundly influence even our most sophisticated brain functions. Likewise, interoceptive pathologies concur with various neuropsychiatric disorders. Our laboratory examines the interoceptive and autonomic circuits regulating bodily and brain states. In primates, interoceptive afferents form a phylogenetically novel ascending pathway terminating predominantly in the insular cortex. In this talk, I will present architectonics, tract-tracing, electrophysiological and neuroimaging evidence suggesting the existence of (1) a topographic representation of bodily afferents in the dorsal posterior insula or "primary interoceptive cortex", (2) a fine subdivision of the middle insula into distinct horizontal "stripes" integrating interoception with poly-sensory inputs, and (3) an ultimate re-representation of contextualized homeostatic states in the ventral anterior insula. The morphologically unique von Economo neuron of the ventral anterior insula projects directly back to the primary central relay of interoception and to pre-ganglionic autonomic centers in the brainstem. fMRI with concurrent recording or stimulation in a unique 'von Economo neuron area' confirmed these projections and unraveled prominent functional relations with high-order cortical areas. This supports the idea that the ventral anterior insula serves as hub for the simultaneous interoceptive shaping of poly-sensory perceptual experience and high-order homeostatic regulation of bodily states.

Organizer : Graduate School of Medicine

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