

invites to a seminar by

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Cortical layer with no known function

23rd of November 2017 at 1 p.m.

Venue: Centre of New Technologies, Banacha 2C,
Lecture Hall 0142 (Ground floor)

Host: Prof. Marta Wiśniewska

The lowermost cell layer of the cerebral cortex that contains interstitial white matter cells in humans has great clinical relevance. These neurons express higher proportions of susceptibility genes linked to human cognitive disorders than any other cortical layer and their distribution is known to be altered in schizophrenia and autism. Despite these clinical links, our current knowledge on the adult layer 6b is limited. These cells are the remnants of the subplate cells that are present in large numbers and play key role in the formation of cortical circuits but a large fraction of them die during postnatal development. The adult population that remains in all mammals to form interstitial white matter cells in human or layer 6b in mouse display unique conserved gene expression and connectivity. We study their input and output using combined anatomical, genetic and physiological approaches. Selected cortical areas, relevant for sensory perception, arousal and sleep (V1, S1, M1, prefrontal cortex) are studied using chemogenetic and optogenetic methods. Our preliminary data suggest that 6b is not just a developmental remnant cell population in the adult, but a layer that plays a key role in cortical state control, integrating and modulating information processing.



Hoerder-Suabedissen A, Upton AL, Grant EL, Korrell KV, Viswanathan S, Kanold PO, Kim Y, Molnár Z (2016) Cortical layer 6b neurons selectively innervate higher order nuclei in the thalamus. *SFN Abstract* 678.03.
Guidi L, Korrell KV, Hoerder-Suabedissen A, Oliver PL, Wilson MC, Kanold PO, Bannerman D, Molnár Z (2016) Functional role of cortical layer VIb in mouse behaviour. *SFN Abstract* 634.16.
Hayashi S, Hoerder-Suabedissen A, Molnár Z (2017) Ultrastructural characterisation of cortical layer 6b axon terminals in the posterior thalamic nucleus. *Cortical Development Meeting Abstracts, Chania*.

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<https://www.dpag.ox.ac.uk/research/molnar-group>