Département de psychiatrie
Centre de neurosciences psychiatriques
Site de Cery
CH-1008 Prilly - Lausanne

Centre de Neurosciences Psychiatriques

CNP SEMINAR

ANNOUNCEMENT

Monday, June 26, 2017, 16:00

"Maturation of inhibitory system in the postnatal brain: implications in pathophysiology of psychiatric disorders"

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The majority of interneurons are generated during embryonic neurogenesis and few populations continue to be generated also postnatally. Concerted action of extrinsic stimuli is required to regulate long distance migration of newly generated interneurons and their differentiation and maturation into distinct subtypes. Impairments in migration, differentiation and maturation of interneurons will result in disorganization of inhibitory networks and dysfunction of local circuits thus contributing to a psychiatric disorder. Two stories will be presented, where we studied migration and maturation of interneurons during postnatal brain development. In one story, we identified a serotonergic mechanism that governs migration of postnatally-generated neurons in the mouse brain. Serotonergic axons originating from the raphe nuclei exhibit a conspicuous alignment with subventricular zone-derived neuroblasts. Furthermore, we showed that such alignment is evolutionary conserved from fish to mammals. Optogenetic axonal activation provides functional evidence for serotonergic modulation of neuroblast migration, and this stimulation depends on 5HT3A receptor expression in neuroblasts. In another story, we investigated maturation of interneurons in a mouse model of schizophrenia and demonstrated selective impairment in several types of interneurons, whereas other types seemed to function properly.

Selected publications:

1. García-González D.[#], Khodosevich K.[#], Watanabe Y., Rollenhagen A., Lubke J., Monyer H. (2017). Serotonergic projections govern postnatal neuroblast migration in vertebrates ***Neuron***, 94(3): 534-49
2. Khodosevich K., Jacobi E., Farrow P., Schulman A., Zhang L., Rusu A., Sprengel R., Monyer H., von Engelhardt J. (2014). Co-expressed auxiliary subunits exhibit distinct modulatory profiles on AMPA receptor function. ***Neuron***, 83(3): 601-15
3. Khodosevich K., Lazarini F., von Engelhardt J., Kaneko H., Lledo P. M., Monyer H. (2013). Connective tissue growth factor regulates interneuron survival and information processing in the olfactory bulb. ***Neuron***, 79(6): 1136-1151.

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