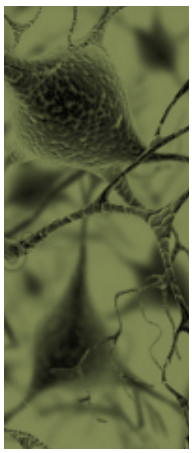
ImageNinND: Imaging Neurogenesis in Neurodegenerative Disease: *In vivo* imaging of dopaminergic adult-born neurons in the olfactory bulb of animal models of Parkinson's disease.

Austria Canada Finland France Germany Italy Israel Luxemburg Poland Romania Spain

Project Description With advancing age, the ability of humans to detect and discriminate odorous molecules declines. Deficits in olfactory function cause a decrease in the quality of life and can affect appetite and thereby impact the nutritional status of elderly individuals. Decreased olfactory function during ageing is paralleled by decreases in other brain functions that occur in the absence of obvious disease states, such as changes in other sensory functions and cognition (memory loss, depression, etc.). Olfactory deficits are also very common in neurodegenerative diseases like Parkinson's disease and Alzheimer's disease. These deficits may be partly due to alterations in the maturation of adult-born neurons which incorporate into the neuronal network of the olfactory bulb.
We aim to apply cutting-edge technologies to study the basic mechanisms of the survival and maturation of dopaminergic neuronal precursor cells in the olfactory bulb throughout ageing and in Parkinson's disease. Overall, we seek to establish an in vivo assay that allows the testing of compounds aimed at promoting the maturation of adult-born neurons in altered neuronal networks. Such an assay may not only be relevant for neurodegenerative diseases with early olfactory dysfunction including Alzheimer's disease and Parkinson's disease but may also be relevant for other brain diseases of different origin where the integration of adult-born neurons in altered neuronal networks is a potential therapeutical option.



Jochen Herms, MD (coordinator)

PROJECT**PARTNERS:**

Jochen Herms, MD
Ludwig-Maximilians University \ Centre for Neuropathology \ Germany

Pierre-Marie Lledo, PhD
Perception and Memory laboratory and CNRS
Unit "Genes, Synapses & Cognition"\ Paris \ France

Adi Mizrahi, PhD
The Alexander Silberman Inst. of Life Sciences \
The Hebrew University of Jerusalem \ Jerusalem\ Israel

Jacek Jacek Jaworski, PhD
International Institute of Molecular and Cell Biology in Warsaw \ Poland