

Offre de stage de Master M2R

Tuteur du stage et Laboratoire d'accueil / Internship supervisor and Host laboratory:

Laboratoire d'accueil (NOM, directeur et adresse): Centre de Neurosciences Cognitives, CNRS UMR5229, Directeur: J-R Duhamel

Equipe d'accueil et tuteur du stage:

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Titre du projet de recherche / Research project title:

Separating the specific contributions of aging and performance to brain activation during working memory

Description du projet / Project description:

Normal aging is associated with various changes in neural activity that frequently include the prefrontal cortex (PFC) and the hippocampus. However, it is unclear whether neurofunctional changes occurring across adulthood are due to aging *per se* or to progressive decline in cognitive performance because these two processes are intrinsically correlated. It is therefore crucial to disentangle the relationships between brain activation, aging and cognitive performance. Understanding these relationships offers insights into the physiological interpretations of the neuroimaging findings. The goal of this project is to scan a large cohort of subjects ($n > 80$) across the entire adult age-range (aged 20-80 years) during a working memory paradigm using functional magnetic resonance imaging (fMRI). Correlational analyses should allow us to identify brain regions specifically engaged as age or working memory performance increase or decrease as well as brain regions showing interactions between age and performance. The results should shed light on the neurobiology of age-related cognitive difficulties and on the respective contributions of age and performance on brain activation across adulthood.

Publications du laboratoire (5 max) / Lab publications (5 max):

- **J-C Dreher**, P. Koch, P. Kohn, J. Apud, D. Weinberger and K.F. Berman. Common and differential pathophysiological features accompany comparable cognitive impairments in medication-free patients with schizophrenia and in healthy aging subjects, *Biological Psychiatry*, doi:10.1016/j.biopsych.2012.01.00, 2012
- **J-C Dreher**, A. Meyer-Lindenberg, P. Kohn and K.F Berman. Age-related changes in midbrain dopaminergic regulation of the human reward system, *Proceedings of the National Academy of Sciences USA*, vol. 105 no. 39, 15106-15111, 2008