Offre de stage M2R Sciences Cognitives à Lyon

Tuteur de la thèse 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

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Titre du projet de recherche / Research project title:

Functional neuroimaging studies of Group and individual decision-making in humans

Description du projet / Project description:

A large body of behavioral evidence indicates that groups behave differently from individuals with regard to cooperation and competition, risk and uncertainty, trust and trustworthiness. Most studies conclude that people in groups act more selfishly and may be more risk seeking than when they make decisions individually. Yet, little is known about the neural mechanisms underlying the differences between choices made as an individual or in groups. There is also no direct neural evidence for the existence of specific group-decision making processes. The goal of this project is to investigate the cerebral networks engaged when making decisions as individual and in groups. We will also investigate the neural coding of psychological processes that may underlie differences between individual and group decision-making, such as envy, compassion and the motivation to avoid guilt and blame when making decisions that affect others' welfare, and the social pressure to conform to certain norms when one is in a group setting. Three different experiments will allow us to better understand the neural mechanisms involved in individual and group decision making: (a) the first concerns intergroup interactions in a non-stochastic environment, which leads to more cooperative outcomes in group settings than inter-individual interactions, (b) the second concerns intergroup interactions in a stochastic environment, which generally lead to less cooperative outcomes in group settings than interindividual interactions, (c) the third study concerns the effect of risk in groups. We will test whether the average group is more risk averse than the average individual in high-risk situations, but groups tend to be less risk averse in low-risk situations. Together, our findings should clarify the relationships between brain activation and decision-making in individuals and groups.

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

- E Météreau and J-C Dreher. Cerebral correlates of salient prediction error for different rewards and punishments, *Cerebral Cortex*, /doi:10.1093/cercor/bhs037, 2012
- G. Sescousse, J. Redoute, J-C Dreher. The architecture of reward value coding in the orbitofrontal cortex, *J Neurosci*, 30(39):13095-104, 2010
- C. Prevost, M. Pessiglione, E. Metereau, M-L. Clery-Melin, J-C Dreher. Separate valuation subsystems for delay and effort decision costs, *J Neurosci.,* 30(42):14080-90, 2010