

**Master Sciences Cognitives Grenoble
2013-2014
Proposition de stage de recherche**

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

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Reward and decision making team

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5 keywords : Neuroeconomics, Decision making, reward, orbitofrontal cortex, model-based fMRI

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

RESUME :

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. We will design and test a new fMRI experiment designed to understand the neural mechanisms involved in individual and group decision making. We will study intergroup interactions, which leads to less cooperative outcomes in group settings than inter-individual interactions. Together, our findings should clarify the relationships between brain activation and decision-making in individuals and groups.

4 publications :

- G Sescousse, G Barbalat, P Domenech B, **J-C Dreher**, Imbalance in the sensitivity to different types of rewards in pathological gambling, *Brain*, 136(Pt 8):2527-38, 2013
- E Météreau and **J-C Dreher**. Cerebral correlates of salient prediction error for different rewards and punishments, *Cerebral Cortex*, 23(2):477-87, 2013
- **J-C Dreher**. Neural coding of computational factors involved in decision making. *Progress in Brain Research*, 202:289-320, 2013
- G Sescousse, X Caldù, B Segura, **J-C Dreher**, Common and specific neural structures processing primary and secondary rewards: a quantitative voxel-based meta-analysis, *Neuroscience and Biobehavioral reviews*, 37(4):681-96, 2013