

**The 'thalamocortical switch' and consciousness: is interruption of thalamocortical transmission the cause or a consequence of induction of general anaesthesia by Propofol.**

**Investigators:**

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This project involves the administration of slowly increasing and decreasing infusions of propofol to healthy volunteers to investigate the transition between perception and its failure using two techniques. Electroencephalographic (eeg) data is collected first in isolation and then again, with the same infusion regime, with simultaneous functional magnetic resonance imaging (fmri). During the acquisitions subjects are exposed to auditory and noxious stimuli and cardiorespiratory parameters are recorded.

During the first year of this two year project, the approval of the Research Ethics Committee was obtained. Several systems for the acquisition of high quality eeg data during simultaneous, continuous fmri scanning were trialled and we then upgraded our combined eeg/fmri system with the generous assistance of the BJA/CoA Project Grant funding. Data acquisition with this improved system was extensively piloted, collecting combined eeg/fmri datasets extending over two hours.

Recruitment for participation in the study is complete and data collection has proceeded successfully to date. The estimated date for completion of data collection is December 14<sup>th</sup> 2009. Analysis of the extensive dataset will require approximately six months and we hope to report results in the second half of 2010.