Postdoc “Cognitive Neuroscience of Memory”

For our “Schema” Project, we seek to hire an excellent Postdoc in the Fernández Lab, which probes the brain basis of memory by applying an interdisciplinary approach integrating cognitive neuroimaging, pharmacology, and genetics.

The current position is financed by a prestigious ERC Advanced Investigator Grant, which Richard Morris (University of Edinburgh) and Guillén Fernández (Donders Institute, Nijmegen) received jointly. This project is an interdisciplinary experimental analysis of the neurobiological mechanisms by which we acquire knowledge. Our approach builds upon recent findings of the participating laboratories that have each addressed key issues associated with the rapid acquisition and assimilation of new associative information into existing neural ‘schemas’. The studies conducted at the Donders Centre will involve fMRI and new cognitive tasks, which are in some cases combined with pharmacology (sophisticated dopamine manipulation), transcranial magnetic stimulation, and a translational project reaching into real-world education.

Applicants should be able to demonstrate a strong academic track-record – most optimally in cognitive neuroscience of memory - and be proficient in fMRI research.

Organization
The Donders Institute for Brain, Cognition and Behaviour (http://www.ru.nl/donders/) with its Centre for Cognitive Neuroimaging offers neuroscientists a unique, multidisciplinary working and learning environment with opportunities for developing expertise in a diversity of research areas and techniques. The centre is equipped with three MRI scanners (7T, 3T, 1.5T), a 275-channel MEG system, an EEG-TMS laboratory, several (MR-compatible) EEG systems, and high-performance computational facilities.

Conditions of employment
Employment: 1,0 fte, the position is initially limited for three years (12 months probation period), but can be extended to maximally five years.

Application
Please send your applications including a motivation letter, CV, and the names (email addresses) of two academics who can provide references to Guillén Fernández at g.fernandez@donders.ru.nl

Closing date: December 31st 2011.

Additional Information
Please contact Guillén Fernández at g.fernandez@donders.ru.nl for further information.

Project relevant, recent publications:

1. Bethus I, Tse D, Morris RG. Dopamine and memory: modulation of the persistence of memory for novel hippocampal NMDA receptor-dependent paired associates. Journal of Neuroscience. 2010; 30: 1610-8.
2. Takashima A, Petersson KM, Rutters F, Tendolkar I, Jensen O, Zwarts MJ, McNaughton BL, Fernández G. Declarative memory consolidation in humans: a prospective functional magnetic resonance imaging study. Proceedings of the National Academy of Sciences USA 2006; 103: 756-761
3. Takashima A, Nieuwenhuis IL, Jensen O, Talamini LM, Rijpkema M, Fernández G. Shift from hippocampal to neocortical centered retrieval network with consolidation. Journal of Neuroscience 2009; 29: 10087-10093
4. Tse D, Langston RF, Kakeyama M, Bethus I, Spooner PA, Wood ER, Witter MP, Morris RG. Schemas and memory consolidation. Science 2007; 316: 76-82

5. Tse D, Takeuchi T, Kakeyama M, Kajii Y, Okuno H, Tohyama C, Bito H, Morris RG. Schema-dependent gene activation and memory encoding in neocortex. Science 2011; 333: 891-895
6. van Kesteren MT, Fernández G, Norris DG, Hermans EJ. Persistent schema-dependent hippocampal-neocortical connectivity during memory encoding and post-encoding rest in humans. Proceedings of the National Academy of Sciences USA 2010; 107: 7550-7555
7. van Kesteren MT, Rijpkema M, Ruiter DJ, Fernández G. Retrieval of associative information congruent with prior knowledge is related to increased medial prefrontal activity and connectivity. Journal of Neuroscience 2010; 30: 15888-15894
8. Wang SH, Morris RG. Hippocampal-neocortical interactions in memory formation, consolidation, and reconsolidation. Annual Reviews of Psychology 2010; 61: 49-79
9. Wang SH, Redondo RL, Morris RG. Relevance of synaptic tagging and capture to the persistence of long-term potentiation and everyday spatial memory. Proceedings of the National Academy of Sciences USA 2010; 107: 19537-42