

Three-year MRC PhD studentship available in Iannetti Lab!

Dr Giandomenico Iannetti, together with Dr Jordi Serra as industrial partner, offers a 3-year MRC PhD studentship at the Department of Neuroscience, Physiology and Pharmacology (NPP) of University College London (UCL), to work on the abnormal neural afferent patterns in neuropathic pain using different cutting edge neurophysiological techniques.

PhD title: Characterising the functional significance of abnormal neural afferent patterns in neuropathic pain using microneurography, intraneural microstimulation and event-related potentials (ERPs).

Project duration and salary: 3 years, starting in October 2011. Salary is approximately £15,740 per year.

Project description: Neuropathic pain ("pain arising as a direct consequence of a lesion or disease affecting the somatosensory system") is one of the most important chronic pain conditions, it is difficult to treat, and the mechanism of action of many pharmacological agents used to treat it is not understood. This project will use microneurography, a technique that allows recording from single primary sensory neurons in awake humans, and intraneural microstimulation, a technique to selectively stimulate individual axons in vivo, to relate abnormal nerve impulse activity, called ectopia, responsible of symptoms in patients with neuropathic pain, with sensory perception in awake human beings. The recording of event-related potentials (ERPs) will be used to record the cortical responses elicited by the abnormal patterns of firing in primary sensory neurons. Understanding the pathophysiological mechanisms underlying neuropathic pain, one of the most important, mysterious and difficult to treat chronic pain conditions, would be crucial to provide a more informed choice of treatment options and guide the development of pharmacological agents targeting specific pathophysiological mechanisms underlying the positive symptoms of neuropathic pain. The results of this project will provide definitive information linking abnormal patterns of spontaneous activity in peripheral nociceptors to experienced pain perception

Project aims: (1) Use intraneural microstimulation in normal volunteers, to induce patterns of afferent volley similar to those recorded in neuropathic pain patients, and explore their perceptual correlates.
(2) Use high-density event-related potentials (ERPs) to explore the cortical responses elicited by the abnormal patterns of firing in primary sensory neurons.

Project outcome: Understanding the pathophysiological mechanisms underlying neuropathic pain, one of the most important, mysterious and difficult to treat chronic pain conditions, would be crucial to provide a more informed choice of treatment options and guide the development of pharmacological agents targeting specific pathophysiological mechanisms underlying the positive symptoms of neuropathic pain.

Closing date: 3rd April 2011.

Successful applicant is expected to have a strong interest in neural signal processing. A background in physics or engineering, as well as experience with Matlab and other signal analysis platforms are desirable.

For more information and informal enquiries, please contact: Dr Giandomenico Iannetti, g.iannetti@ucl.ac.uk (contact details on the main lab webpage: <http://iannettelab.webnode.com>, where a list of lab members and publications can be also found). To apply, please send CV, personal statement and the names and contact details of two references to Dr Giandomenico Iannetti: g.iannetti@ucl.ac.uk

It is very important to read the Research Council eligibility rules before applying:

www.mrc.ac.uk/Fundingopportunities/Applicanthandbook/Studentships/Eligibility/index.htm