



The Department of Experimental Pain Research at the Medical Faculty Mannheim of the University Heidelberg appreciates to receive applications for a PhD-position in a project that is funded by the German Science Foundation (DFG) and entitled

***Selective activation of nociceptor sub-groups  
by slowly depolarizing electrical stimuli***

There is growing evidence that neuropathic pain in patients is driven and maintained by abnormal firing patterns and spontaneous discharges of unmyelinated afferent neurons (C-nociceptors). Mutations of the voltage-gated sodium channels NaV1.7, 1.8 und 1.9 were identified as one mechanism associated with the generation of neuropathic pain.

Your tasks:

In this project you will examine slowly depolarizing electrical stimulation protocols to specifically activate C-nociceptors. The activation of C-nociceptors will be electro-physiologically assessed by single nerve-fiber recordings in the pig (*Sus scrofa*) *in vivo* and validated by clearly characterised C-nociceptor sub-classes. Slow depolarization ramp currents cause the preferential opening of NaV1.7, 1.8 or 1.9 channels. In the project, sodium channel modulating toxins will be tested on the activation of specific C-nociceptor sub-classes by slowly depolarizing currents. The excitability of C-nociceptors will be recorded upon intradermal injections of the buffer-fish tetrodotoxin TTX (NaV1.8 and 1.9 are TTX resistant), the cone snail peptide conotoxin (NaV1.8 blocker) or the tarantula venom ProTx-II (NaV1.7 blocker).

Candidates (m/f) should have an educational background in Natural Sciences or Veterinary Medicine. Knowledge in electro-physiology and nerve fiber recordings would be advantageous. Expertise in the preparation of large animal *in vivo* (e.g. pre-medication, anaesthesia, dissection of a peripheral nerve) would be ideal.

The contract should start as soon as possible and is limited for 3 years with option of extension. Please send your application by E-mail to [Roman.Rukwied@medma.uni-heidelberg.de](mailto:Roman.Rukwied@medma.uni-heidelberg.de) . Include a cover letter detailing your research interests and experiences, and attach a detailed CV as well as your Master and Bachelor degrees.