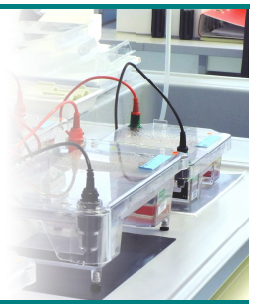
PhD Position – Sodium Channels and Pain

Clinic for Anesthesiology and Intensive Care of the University of Luebeck
& CBBM, Center of Brain, Behavior and Metabolism

– Immediately available –

Salary will be up to TV-L13 (65 %), initially limited to 3 years



Subject and aim:

Relevance of voltage-gated sodium channels for the perception of pain

Voltage-gated sodium channels (Na_V channels) of nociceptive afferents (pain receptors) trigger action potentials which transmit the pain information to the central nervous system. Recently, we demonstrated that functional alterations of sodium channel subtype $Na_V1.9$ cause either *congenital analgesia* or *severe episodic pain attacks* in affected patients (*Nat Genet 45: 1399-1404; Nat comm 6: 10049*). It is still unknown how functional alterations of $Na_V1.9$ channels can cause these two opposing phenotypes. In this project we aim to identify the molecular mechanisms underlying the $Na_V1.9$-dependent pain phenotypes *congenital analgesia* and *severe episodic pain attacks*.

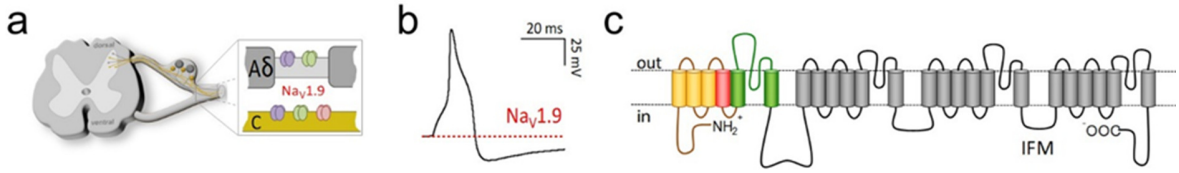


Fig. : (**a**) The cell bodies of nociceptive C-fibers are located in the dorsal root ganglia next to the spinal cord and they express high levels of $Na_V1.9$ channels. (**b**) $Na_V1.9$ channels affect excitability of C-fiber neurons by modulating the level of their resting membrane potential. (**c**) $Na_V1.9$ channels consist of a single protein strand with four homologue domains, each traversing the membrane 6 times.

Methods:

The methods used in this project are electrophysiological assays (*patch-clamp* technique, extracellular recordings), molecular biology techniques (e.g. PCR-based DNA mutagenesis), culturing and transfection of mammalian cells as well as the isolation of primary neurons from animal tissue. All methods are well established in the group.

Requirements:

We are looking for an enthusiastic and highly motivated candidate who holds a degree in biology, biochemistry, biophysics, molecular life sciences, medicine or a similar subject and who has a strong interest to work on interdisciplinary scientific questions. The ideal candidate has a profound knowledge of neuroscience and has already gained initial experience in electrophysiology. Furthermore, we expect solid hands-on laboratory experience, good communication skills and the ability to work in a team.

Your contact:

For questions regarding the position please contact Prof. Dr. Enrico Leipold. Please send your application including a motivation letter, your CV and two references as a single pdf file (max. 4 MB) to:

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