

The role of dl6 interneurons in locomotor circuits

To understand the brain and the nervous system it is imperative to first gain detailed knowledge about the components, the neurons, and their connections, their axons and dendrites. We are interested in the development and function of neuronal circuits in the central nervous system and how they work to execute the enormous array of functional outputs for us to work, think and live.

Commissural neurons are cells that project their axons to the opposite side of the spinal cord from where their cell bodies are located. In the absence of these projections, the two halves of the spinal cord produce rhythms that are completely uncoordinated with each other. In particular, inhibitory connections are thought to be crucial for the alternation between the two sides. Through a microarray screen performed in the Kullander laboratory, we have identified a novel marker for a developmental subtype of interneurons termed dl6 neurons. Progress in 2007 includes having verified the marker as specific for these neurons and identified the neurons as commissural and inhibitory. A collaboration with Martyn Gouldings lab in San Diego has been initiated to investigate these neurons further and compare with a different marker that they have identified for these neurons. We are currently using BAC cloning to generate a mouse that expresses Cre recombinase under the promoter of the dl6 marker. Together with different “modifier mice”, we will be able to characterize these neurons and elucidate their function in the locomotor CPG. We seek motivated individuals to investigate the role of dl6 interneurons in locomotor circuits.

You will be part of an active and vibrant research environment with members of variable background, but mostly consisting of molecular biologists and neuroscientists. At present, our group consists of 2 principal investigators, 7 post-docs, 5 PhD students and a varying number of project and exam students. You will learn a number of general molecular biology methods and get insight into more specialized methods such as electrophysiology, mouse genetics and behavior. The projects are designed together with you to fit your background and to introduce you to novel methods and knowledge areas. As part of our group you are expected to have a curiosity-driven, enthusiastic and motivated work-style, and you will be participating in all our activities including seminars, group meetings, publication preparation work and planning of projects.

If you would like to know more about this project or if you want to visit us in person, please contact klas.kullander@neuro.uu.se or Anna.Vallstedt@neuro.uu.se

Webbsida <http://www.neuro.uu.se/devgen/index.html>
Omfattning 30 hp (tidigare 20 poäng)