Student project Bioinformatics:

**Phylogenetic mapping of presynaptic protein interactions.**

Key words: Bioinformatics, datamining, database, brain, protein networks

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Synapses are the fundamental processing elements that form the basis for the unsurpassed computational power of our brain. At the same time, synapses are in itself rather simple, well-defined structures of +/- 1µm³ with probably a maximum of 2 thousand different types of proteins present. In our group we want to identify protein interaction networks that underlie the complex process of synaptic signalling.

The aim of this project is to predict new interactions for synaptic proteins in human by looking at protein interactions of ortholog (homologous) proteins in other species (Phylogenetic mapping).

To this end we have created a database with protein interactions from 26 species that includes information on how interactions were identified (experiments, model predictions) and with what level of confidence. From this database interaction networks will be extracted based on various criteria (datamining). For this purpose, flexible datamine algorithms need to be developed which result in the most plausible protein interaction networks for the synapse.

We are looking for an enthusiastic Bioinformatics master student with experience in database programming (MySQL, Perl) and affinity with Neuroscience. For more information see [http://www.cncr.nl/enf/NielsCornelisse.html](http://www.cncr.nl/enf/NielsCornelisse.html) or contact: Niels Cornelisse, niels.cornelisse@cncr.vu.nl.