PhD Studentship in bioinformatics:
Network Inference and Pathway Analysis

at the Stockholm Bioinformatics Center, located at Science for Life Laboratory in Stockholm, Sweden, with strong ties to a number of life science and computer science departments at Stockholm University, KTH, and Karolinska Institutet. The research project will be supervised by Professor Erik Sonnhammer (http://sonnhammer.org/).

The project aims at developing computational methods for integrative modelling of big cancer data sets, using a range of network inference methods. These inferences will result in mechanistic gene regulatory networks, and to better understand the biological basis of these, this position will contribute with pathway analysis using the novel BinoX network crosstalk method as well as classical methods. A further aim is to make pathway analysis available in the project web portal.

The goal is also to develop methods for using prior information in gene regulatory network inference. Previous work has been done on using the FunCoup functional association networks as a prior, but the goal here is to instead use physical regulatory evidence such as ChIP-Seq or ATAC-seq which are likely to be more relevant. As such data is hard to simulate in a sensible way, benchmarking needs to be done on real datasets, using databases such as Trrust or other compilations of known regulatory links.

The project involves programming, data analysis, benchmarking, and modelling, as well as application of the developed methods to experimental data generated by the project. The successful candidate should be highly motivated and have an M.Sc. in bioinformatics or related field, and knowledge of molecular biology. Alternatively, an M.Sc. in molecular biology or related field and at least 1 year of practical experience in bioinformatics research. Demonstrable familiarity with network and pathway analysis techniques is essential. Computer programming (ideally R, Matlab, Python, Perl, Java, C, C++), UNIX skills, and knowledge of biological database systems are necessary merits.

To apply, send your CV, a cover letter, and the email address of 2-3 references to Erik.Sonnhammer@scilifelab.se. The position is fully funded for 4 years of full-time study and offers a competitive salary and excellent computational resources. For further information about the research project, contact Erik.Sonnhammer@scilifelab.se, Tel: +46-(0)70-5586395, http://sonnhammer.org