Postdoc position in bioinformatics: gene regulatory network inference

The goal of the project is to use gene regulatory network inference to discover new regulatory mechanisms that control the repertoire of RNA binding proteins (RBPs). To this end, software will be developed and applied in order to infer reliable gene regulatory networks (GRNs) and to analyze the results. Both in-house and public data will be used to infer GRNs that will be analyzed for regulatory links in relation to known RBP functions, and novel discoveries will be experimentally validated.

This is a collaborative project between professors Erik Sonnhammer and Claudia Kutter, both at SciLifeLab in Stockholm, Sweden. SciLifeLab is a national center for large-scale life science research. The Sonnhammer group has extensive experience in GRN inference and has developed several new algorithms to improve the reliability of the GRNs inferred from perturbations. This includes the NestBoot algorithm applied to e.g. LASSO and Least Squares inference methods. The Kutter lab has a research focus on RNA binding proteins and their bound RNAs, especially lncRNAs. The project aims to infer a reliable GRN mainly from shRNA-RNAseq perturbation data from ENCODE and in-house data from the Kutter lab. The inferred GRNs will be analyzed for predictiveness and how well they replicate known links, and newly discovered regulatory interactions will be subjected to experimental validation based on their scientific value.

The project involves programming, data analysis, benchmarking, and modelling, as well as application of the developed methods to experimental data. The successful candidate should be highly motivated and have a Ph.D. in bioinformatics or related field, and good knowledge of molecular biology. Alternatively, a Ph.D. in molecular biology or related field and 2 years of postdoctoral experience in bioinformatics research and programming, documented by scientific publications. Demonstrable familiarity with sequence and gene expression data analysis techniques is essential. Excellent skills in computer programming (primarily Matlab, Python, R) and UNIX are necessary merits.

To apply, send your CV, a cover letter, and the email address of 2 references to Erik.Sonnhammer@scilifelab.se. The position is fully funded for 2 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 or Claudia.Kutter@scilifelab.se. See http://sonnhammer.org and https://ki.se/en/mtc/claudia-kutter-group