



## Postdoctoral Scientist in Bioinformatics

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at Science for Life Laboratory Stockholm (<http://www.scilifelab.se/>). The position is within an interdisciplinary team in the project “Differential Response by INtra Tumour Heterogeneity” (DIRINTH) at Science for Life Laboratory in Stockholm, Sweden. This project recently received funding for five years from AstraZeneca, and aims at mapping gene expression differences within solid tumors at the single cell level.

The project will generate a gene expression profile for each cell in a matrix of a tissue section, where the matrix contains up to 135000 cells. The method is called Spatial Transcriptomics (ST). Analysis of this data needs to be automated, and a bioinformatics group is being established to build infrastructure to analyse the data. This position is mostly focussed on analysing the expression profiles to identify activated and deactivated pathways in a given cell type. To this end, novel statistical methods will be used, such as Network Crosstalk Enrichment Analysis ([NCEA](#)), in combination with traditional gene enrichment analysis (GEA). These will be combined with network module clustering using the [MGclus](#) method.

Specific aims:

- Develop a pathway annotation pipeline for gene expression data based on NCEA, GEA, and MGclus.
- Integrate the pathway annotation pipeline into the workflow of ST analysis.
- Apply the pathway annotation pipeline to ST data, to be able to functionally characterize activated and deactivated pathways in different cell types.
- Build a knowledge database for storing and mining ST data, pathway annotations, and external annotations, using standardized interfaces to analysis algorithms and methods.

The successful candidate should have a Ph.D. in bioinformatics or related field, and detailed knowledge of molecular biology. Familiarity with high throughput data analysis techniques is essential, as well as a high level of motivation. Computer programming skills and knowledge of biological database systems are essential merits.

A person is eligible for a position as postdoctoral research fellow if he or she has obtained a PhD outside of Sweden, no more than seven years before the last date of employment as postdoc. Apply by emailing CV including references to [Erik.Sonnhammer@scilifelab.se](mailto:Erik.Sonnhammer@scilifelab.se). See [sonnhammer.org](http://sonnhammer.org) for more information about the group.