

---

## Methods for RNA and protein analysis in single cells

---

### Research area:

### **Molecular tools**

### Brief description

The Molecular Tools group and the SciLifeLab Single Cell Proteomics Facility are developing methods to study RNA and protein in multiplex at the level of the single cell.

---

### Aim

The Single Cell Proteomics Facility, which is embedded in the Molecular Tools research group, aims to provide access to state-of-the art and beyond approaches to measure proteins in single cells. We welcome students who are interested in single cell analysis to come do a project with us.

### Background

Significant advances have been made in methods to analyze genomes and transcriptomes of single cells, but to fully define cell states, proteins must also be accessed as central actors defining a cell's phenotype. Methods currently used to analyze endogenous protein expression in single cells are limited in specificity, throughput, or multiplex capability. We have developed an approach to simultaneously and specifically interrogate large sets of protein and RNA targets in lysates from individual cells, enabling investigations of cell functions and responses.

### Project plan

We are applying single cell RNA sequencing, protein extension/ligation assays, microfluidic PCR and other novel approaches. We are seeking students interested in working on an aspect of the single cell methods under development, multivariable statistical analysis, bioinformatics approaches to single cell data or applying our methods to biological questions in cancer and human development. Students will work side by side with Molecular Tools postdocs and PhD students or Facility staff.

### Contact details

Name: Caroline Gallant

Research group: Molecular Tools

Email: [caroline.gallant@igp.uu.se](mailto:caroline.gallant@igp.uu.se)

Phone number: 072 5423828