



**Senior research engineer, Department of Clinical Microbiology, Umeå University  
Temporary, 1 year position (100 %) - with possibility of extension**

The Department of Clinical Microbiology, Umeå University, is looking for a senior research engineer for a one year position. The candidate will be active in a research group aiming at elucidating the structural and functional determinants of viruses, and of virus interactions with host molecules. The long term goal is to identify and characterize molecules and mechanisms that can be developed into novel therapies.

**Research Topic - project**

Viruses such as adenovirus and norovirus cause infections in eyes, airways, and/or intestine etc, but viruses can also be modified or reprogrammed, and used e.g. as vaccines against other pathogens, or used for treatment of cancer and other disorders. Thus, it is of importance to understand the structural determinants of entire virions, specific viral capsid proteins, as well as virion/capsid-interactions with host molecules, in order to design/develop e.g. efficient attachment inhibitors for treatment of virus infections, and in order to design and retarget viral vectors to cells and tissues of interest.

In this project, we will study the structural features of specific types of adenoviruses, and of norovirus-like particles. We also aim at produce infectious, human noroviruses and study their structural features. We regularly identify cellular receptors for these viruses and hence we also study virus-receptor interactions, using e.g. single particle Cryo electron microscopy. The project also includes virion and protein production/purification, sample preparation, biophysical characterization, image processing, and model building.

**Duties (responsibilities)**

You will be responsible for carrying out research in the Niklas Arnberg lab.

You will:

- Cultivate eukaryotic and prokaryotic cells for virion and protein production.
- Purify virions and proteins to high homogeneity.
- Perform biophysical characterization of virions and proteins.
- Prepares samples for structural analysis.
- Perform single particle Cryo EM-based (and other microscopy-based) analyses of viruses, viral capsid proteins, and/or virus/capsid-host protein complexes.
- Perform image analyses and model building.
- Work independently and in collaborations.
- Contribute to teaching/supervision of students at basic and advanced levels.
- Write/draft grant applications and manuscripts.
- Engage in scientific collaborations within and outside the group.
- Participate and contribute to scientific group meetings involving the groups and their collaborators.

## **Qualifications**

Applicants will be considered who have a PhD in structural biology or related areas. Expertise and documented experience of i) production and purification of virions or other microbes, viral/microbial proteins, host proteins; ii) sample preparation for structural studies; iii) single particle Cryo-EM analysis and/or X-Ray crystallography, and subsequent image analysis and model building (key asset); are strong merits. Ability to speak and write in English at a high level is required.

## **Research environment**

This postdoc project will be carried out in a highly interdisciplinary environment. The candidate will be active in the group of Niklas Arnberg at the Department of Clinical Microbiology, and with possibility to collaborate with experts in structural biology at neighbouring departments. Arnberg's group focuses on virus-host interactions at various levels in order to i) understand virus tropism; ii) understand mechanisms of infection and pathogenesis; iii) identify targets for antiviral drug development; and iv) design and develop viral vectors for various applications.

## **Position summary**

Full time position, one year (with possibility of extension) – start according to agreement.

## **Application**

The application should contain:

- In one A4 page highlight your specific qualifications and motivation for the position
- Attested copy of PhD certificate
- Curriculum Vitae include full list of publications
- Letters of recommendation and name of at least 2 reference persons

The application is made electronically, via:

<https://umu.varbi.com/en/what:login/jobID:314162/type:job/where:4/apply:1>

**Last day to apply:** 2020-03-12

## **Contact**

For questions, please contact:

Niklas Arnberg, Department of Clinical Microbiology, Umeå University

E-mail: [niklas.arnberg@umu.se](mailto:niklas.arnberg@umu.se)

**Extent of employment:** 100 %

**Salary:** Monthly salary

**First day of employment:** To be agreed