



Wallenberg Centre for
Molecular Medicine
Umeå University

Postdoctoral Position in the Arnberg/Gerold labs

The research groups “Virus-host interactions” and “Virus Interaction Proteomics” at the Department of Clinical Microbiology, Umeå University, are recruiting a research associate (postdoc) on a 2 year position in virology to pursue a project aiming at elucidating and characterizing host receptors for gastroenteric adenoviruses.

Research Topic

Our groups focus on the study of host attachment factors and receptors for human pathogenic viruses. We use state of the art interaction proteomics methods in conjunction with virology and cell biology techniques to characterize cell surface proteins and glycans bound by viruses.

Your role

You will be responsible for carrying out research as part of a collaborative project involving the Arnberg (www.mims.umu.se/groups/niklas-arnberg) and Gerold (www.umu.se/en/staff/gisa-gerold) research groups. The project aims at identifying and characterizing attachment factors and receptors for the short fiber knob component of the adenovirus 41 capsid. Specifically, ligand based receptor capture protocols and co-immunoprecipitation methods will be used. You will further validate and characterize identified host factors by RNA interference, CRISPR/Cas9 technology, surface plasmon resonance and pharmacological perturbation in conjunction with cell culture assays. Gastroenteric adenoviruses are a major public health concern and currently no therapy or vaccine exists to treat or prevent infection.

You will work closely with other postdoctoral researchers in the Arnberg lab to purify adenovirus 41 short fiber knob interacting host proteins. The samples will be used for mass spectrometry based receptor candidate identification by state of the art label free quantification. The design and optimization of these methods as well as data analysis will be done in collaboration with the Gerold lab.

Responsibilities

You will:

- Develop and conduct assays to evaluate binding of short fiber knobs to enterochromaffin cells using crosslinked fluorophores.
- Capture attachment factors and receptors of adenovirus short fiber knobs using trifunctional crosslinkers.
- Perform statistical calculations on the mass spectrometric data sets and perform downstream bioinformatic analyses including pathway and enrichment analyses.
- Silence candidate proteins in enterochromaffin cells by RNA interference and monitor short fiber knob induced serotonin release.
- Generate CRISPR/Cas9 knockout cells of short fiber knob receptors and perform functional cell assays.
- Participate and contribute to scientific group meetings involving the groups and their collaborators.
- Contribute as appropriate to the publication of research findings.



Wallenberg Centre for
Molecular Medicine
Umeå University

- Participate in training and supervision of scientists and research students in the group
- Comply with the University's Equal Opportunities and Data Protection policies.

Selection criteria

Essential

- PhD in infection biology, biochemistry, molecular biology, or cell biology, degree completed no more than 3 years ago.
- Excellent written and oral English communication skills.
- Significant experience in mammalian cell culture and transfection.
- Relevant experience in molecular cloning and ectopic protein expression.
- Interest in protein biochemistry of virus-host interactions.
- Ability to work as part of a team as well as independently.
- Ability to deliver results to required standard and schedule and to organize and prioritize own work with minimal supervision.

Desirable

- Previous practical experience with sample preparation for mass spectrometry.
- Experience in MS data processing and R programming.
- Experience in virology.
- Experience in surface plasmon resonance.

Research environment

We are an international team based at the Department of Clinical Microbiology at Umeå University, Sweden. Our group has access to state-of-the-art equipment and techniques for cell culture work and mass spectrometry based proteomics. We offer an international, stimulating and collaborative research environment, in which your scientific career development is fostered.

Position summary

Full-time 2 years with full salary

Application

Please apply until April 15th, 2019 at

https://www.umu.se/en/work-with-us/open-positions/postdoc_255682/

with the following documents:

1. Letter highlighting your qualification and motivation
2. CV including publication list
3. Copy of PhD certificate
4. Contact information of 2-3 references

For questions, please contact:

Niklas Arnberg, E-mail: niklas.arnberg@umu.se

Gisa Gerold, E-mail: gisa.gerold@umu.se