

## **Postdoc**

### **Postdoctoral position in Virology**

*The Department of Clinical Microbiology, Umeå University, is looking for a research associate (postdoc) on a 2 year position. The associate will be active in a research project aiming at elucidating the influence of APOE genotype on herpes simplex virus infection with the long term goal of better understanding how herpes simplex virus type 1 (HSV-1) infections contribute to the development of Alzheimer's disease.*

### **Research Topic**

APOE genotype has been proposed as a key risk factor in both Alzheimer's disease and Herpes simplex virus type 1 infection in the brain. Understanding the mechanisms for this interplay between APOE4 and HSV-1 is central for understanding the role of HSV-1 in AD processes and for the future development of possible interventions to decrease the risk of AD development.

In this project, we focus on elucidating on a molecular level, how the presence of apolipoprotein E (apoE) influences virus attachment and entry into neural cells in an isoform-specific manner. To do so, we will take a distinct approach combining classical virology experiments with advanced biophysical assays relying on fluorescence microscopy and single particle tracking to study virus attachment to the host cell and virus uptake.

In addition to this, you will also use in vitro models of the cell surface to carry out virus-membrane interaction studies using surface-based sensing instruments (e.g., TIRF, SPR) to complement the live cell microscopy experiments.

### **Responsibilities**

You will be responsible for carrying out research as part of a collaborative project involving the Bally and the Lövheim lab, working closely with other postdoctoral researchers and students in the Bally lab.

You will:

- Prepare lipid-bound apoE containing lipoprotein particles
- Perform infection assays of neurons
- Study virus binding using surface sensitive techniques (TIRF microscopy and QCM-D) and cell surface mimics.
- Probe biomolecular interactions using surface plasmon resonance.
- Characterize virus entry using live cell fluorescence microscopy and single particle tracking.
- Participate and contribute to scientific group meetings involving the groups and their collaborators
- Contribute as appropriate to the publication of research findings.
- Participate in training and supervision of scientists and research students.

### **Selection criteria**

In the first place applicants who have completed a doctoral degree no more than three years before the application deadline are considered. If there are special reasons, an earlier doctoral degree could be

considered. Special reasons refer to leave due to illness, parental leave or clinical service, trust assignments within trade union organizations or other similar circumstances”.

The successful candidate should have a PhD in medical or natural sciences with focus on infection biology, cell biology, biochemistry biophysics or related disciplines.

Expertise either in virology or in fluorescence microscopy, single particle/molecule tracking and image analysis would be a strong asset.

Ability to independently plan experiments, develop methods and carry out analyzes, and summarize results in English is a requirement.

It is expected that the candidate can conduct research in a highly independent manner and apply for own funding. In addition, the candidate should have documented good ability to work in an interdisciplinary environment at the interface between physics, chemistry and biology and to cooperate with other research groups.

### **Research environment**

This postdoc project will be carried out in a highly interdisciplinary environment collaborating with the Umeå Center for Microbial Research (UCMR) and Molecular Infection Medicine Sweden (MIMS). The fellow will be active in the young group of Marta Bally within the Wallenberg Center for Molecular Medicine (WCMM) at the Department of Clinical Microbiology. Her group focuses on the mechanisms mediating and modulating virus-membrane interactions and virus entry. The fellow will further work in close collaboration with the groups of Hugo Lövheim (department of community medicine and rehabilitation, Geriatric Medicine & WCMM), Fredrik Elgh (department of clinical microbiology, virology) and Dr. Anders Olofsson (department of medical biochemistry and biophysics).

### **Position summary**

Full time position, two years – start according to agreement

### **Application**

The application should contain:

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

The application is made electronically (via the system Varbi). Last day to apply is: June 13.

### **For questions, please contact:**

Marta Bally, Department of Clinical Microbiology, E-mail: [marta.bally@umu.se](mailto:marta.bally@umu.se)

*We welcome your application!*