

## **Novel treatments for toxin-mediated bacterial infection and their mechanism of action**

Enterohemorrhagic *E. coli* (EHEC) bacteria are pathogens ingested by oral intake of contaminated food or water. Large foodborne outbreaks occur with thousands developing diarrhea and hemorrhagic colitis affecting both children and adults. Approximately 15% of cases will develop the life-threatening complication termed hemolytic uremic syndrome (HUS) manifesting with hemolytic anemic, thrombocytopenia, acute renal failure, in some cases severe neurological symptoms and up to 5% mortality. The bacteria are non-invasive, colonizing the intestine where they secrete unique virulence factors such as Shiga toxin. Shiga toxin is encoded by a bacteriophage. There is currently no treatment for EHEC infection and antibiotics can worsen the disease by bacteriophage activation, thereby increasing release of Shiga toxin. We have established an animal model of EHEC infection and studied novel treatments, such as IgG, annexin and apyrase, that reduce bacterial pathogenicity. This post-doctoral project will further investigate novel mechanisms of reducing bacterial virulence.

A 2-year post-doc position is open at our research lab at the **Biomedical Center of Lund University in southern Sweden**.

The project will include:

- Studies of the systemic effect of apyrase in vivo and in vitro on blood cells and on Shiga toxin-mediated tissue injury
- The development of IgG-derived treatment for EHEC infection

Methodology:

Mouse models, bacterial and cell culture, immunohistochemistry, high resolution microscopy, PCR, immunological methods.

The applicant should have a PhD in biomedicine, medicine or a related subject, experience with in vivo rodent models and a strong interest in translational research. Excellent academic qualifications and capability to work independently as well as good English language skills both spoken and written are highly relevant.

We look forward to receiving your application with the following documents:

- CV
- Publication list
- Statement on your motivation, a short description of past and present research experience and research interests
- Contact details for at least two academic references

For more information please contact: **diana.karpman@med.lu.se**