

Degree project 30 hp

Bacterial pathogens in the gastro-intestinal tract.

The department for Clinical bacteriology is headed by Professor Hilpi Rautelin. Her research concerns mechanisms of pathogenicity in the bacteria *Campylobacter* and *Helicobacter*. *Campylobacter* is the most prevalent cause of intestinal infections in the western world. It causes acute infections with severe diarrheas, often combined with strong pain in the patients. *Helicobacter*, on the other hand, more often infects the stomach mucosa. This bacterium is also strongly associated with the development of ulcer as well as with stomach cancer.

We study bacterial virulence in vitro, for instance by measuring the binding and invasion of epithelial cells grown in culture. In relation to this invasion we also assess the host cell responses. We also use other experimental means to try to get at important virulence factors possessed by the bacteria. Furthermore, the project has a strong connection to clinical aspects since it also aims at determining the role bacterial virulence plays for the overall illness symptoms they cause in infected individuals.

We also study the interactions between *Campylobacter* and free living amoebas. Amoebas are found in all watercourses, including water pipes as part of biofilms. Among their staple food sources are bacteria. *Campylobacter* can, like several other bacteria, avoid predation by amoebas, actually by instead invading the amoebas and thus actively using them for growth and spreading in the environment.

If any of the above sounds interesting for a possible degree project, you are most welcome to contact us for continued discussions.

We prefer that you do a project of at least 30 hp since the project includes lab work and thus will take some time to start up.

Personal contact: Patrik Ellström

Email: patrik.ellstrom@medsci.uu.se