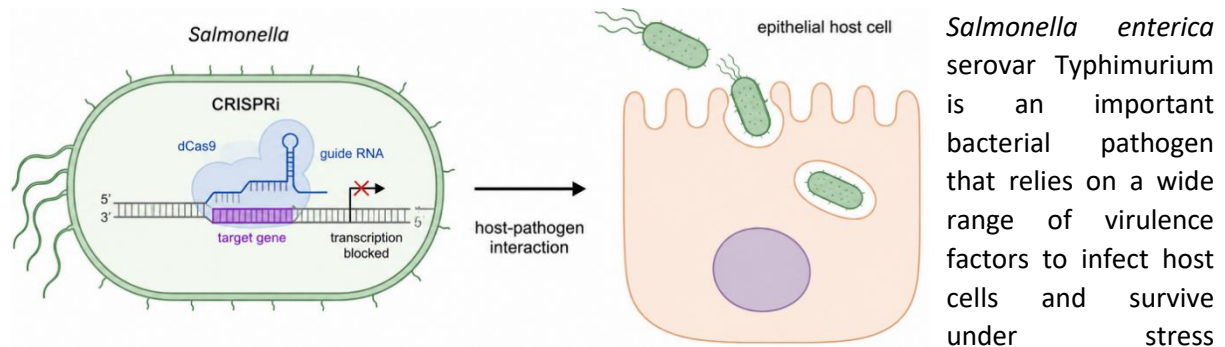


Study Project + Master Thesis Project in Host–Pathogen Interaction



CRISPRi-based screening for pathogenicity and cell envelope integrity factors in *Salmonella enterica* serovar Typhimurium

Project overview



conditions. In addition to classical pathogenicity determinants, bacterial cell envelope integrity plays a central role in environmental adaptation, antibiotic tolerance and host–pathogen interactions. This Master project will use CRISPR interference (CRISPRi) as a genetic tool to investigate genes involved in *Salmonella* pathogenicity and bacterial cell envelope integrity. CRISPRi allows targeted repression of gene expression without permanently deleting the gene, making it particularly useful for studying essential or conditionally important genes. The project will combine bacterial genetics, molecular cloning and infection-related assays to identify and characterize candidate genes that affect *Salmonella* fitness, envelope stability and interaction with eukaryotic host cells.

Aims of the project

This project aims to use CRISPRi to identify *Salmonella* genes involved in bacterial growth, cell envelope integrity and infection-related phenotypes in epithelial host cells.

Student profile and requirements

This project is suitable for a motivated Master student with a strong interest in bacterial genetics, host–pathogen interactions and molecular microbiology. The project is designed as a **full-time Master project** (ca. 9 months) and requires careful experimental planning, independent laboratory work and good documentation.

Who we are looking for:

- Knowledge of bacterial strain construction
- Experience or basic training in molecular cloning
- Interest in bacterial pathogenesis
- Previous experience with eukaryotic cell culture would be an advantage.

Project start: July - August 2026

Application deadline: 14 June 2026

Please send your application, including a CV and transcript of records, to:

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