Background:

Flagella proteins of gram-negative bacteria including *Aeromonas caviae* (an increasingly common causative agent of diarrhoea in children), *Campylobacter jejuni* (the causative agent of Guillain-Barré syndrome) and *Helicobacter pylori* (associated with the development of duodenal ulcers and stomach cancer) are highly O-glycosylated, featuring rare non-mammalian carbohydrates/sugars which are essential for correct flagella assembly and therefore bacterial motility.

Objectives:

In this project we will develop novel chemoenzymatic routes to chemical biology probes to be used in the characterisation, dissection and inhibition of the enzymes involved in the modification of surface of flagella in these pathogenic bacteria.

Training:

The project will encompass and provide training in a wide variety of interdisciplinary ‘chemical biology’ techniques, including synthetic/enzymatic carbohydrate chemistry,¹ solid phase peptide synthesis (SPPS), protein expression and purification, molecular biology, and *in vivo* unnatural amino acid mutagenesis.

References: