



Project acronym: CAB-AMR

Project title: Campylobacter in arctic birds as an indicator of global spread of antimicrobial resistant zoonotic pathogens

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Discipline: Life Sciences & Biotech: Other - Life Sciences & Biotech

Station(s): Rif Field Station (Iceland), Kilpisjärvi Biological Station (Finland)

Wild birds play an important role in AMR since they can pick up resistant bacteria from contaminated environments and disseminate them over great distances. Campylobacter, a well-known human foodborne enteric pathogen, is a ubiquitous commensal inhabitant of birds. Previous studies have isolated Campylobacter from various wild bird species all over the world, even in Antarctica, but only superficial investigations of diversity and AMR have been conducted. We have sampled faeces from a variety of bird species, in the area surrounding two research field stations: (i) RIF Field Station – Iceland and (ii) Kilpisjärvi Biological Station - Finland). We (1) isolated bacteria of the genus Campylobacter from shorebirds and (2) stored bird droppings in a solution that preserves DNA. (1) We aim to extract the DNA from Campylobacter positive cultures and send it for whole genome sequencing. Downstream genomic analysis includes using these genomes and other publicly available genomes from other sources to determine the genomic identity with genomes isolated from other bird species. Future analysis aims to detect specific genetic determinants, some linked to AMR, and identify transmission events between bird species, human clinical cases, livestock animals and the environment. (2) We aim to extract the DNA from this type of specimen and send it for metagenomics analysis. Downstream analysis includes determining the bacterial species composition as well as the AMR genetic determinants associated to them, in the whole gut microbiome.