

Beyond genetic borders: Decoding the interactions of plasmids, phages, and bacteria

Date & Time

20 June 2023
14:00-16:30

Location

Technical University of
Denmark, Asmussens Allé
303A, Auditorium 43, 2800
Kongens Lyngby

Registration by 16 June

[https://forms.office.com/e/
/U2hN6RPMZ4](https://forms.office.com/e/U2hN6RPMZ4)

14:00-14:05

Welcome

Lone Gram,

Professor, Center Leader, CeMiSt, DTU Bioengineering

14:05-14:40

Interactions amongst bacterial mobile genetic elements: a focus on plasmids and phages

Alison Buchan,

Dr, Carolyn Fite Professor of Microbiology, University of Tennessee

14:40-15:15

Staying below the radar: unravelling a new family of ubiquitous non-tailed temperate vibriophages and implications for their bacterial hosts

Mathias Middelboe,

Professor of Marine Viral Ecology, Department of Biology, University of Copenhagen

15:15-15:50

Gene Transfer Agents – An Enigmatic Family of Selfless Viruses

Paul CM Fogg,

Dr, Sir Henry Dale Senior Research Fellow, University of York, Department of Biology and York Biomedical Research Institute

15:50-16:30

Drinks & networking in the foyer

Meet our invited speakers



Alison Buchan is a microbial ecologist studying the interactions heterotrophic marine bacteria have with one another; other members of the microbial community; phytoplankton; living and detrital organic matter; and the viruses (phages) that infect them. Her lab uses representatives of the environmentally relevant *Roseobacter* group of marine bacteria to uncover the molecular mechanisms that underlie these diverse interactions. While roseobacters are broadly distributed across diverse marine environments, their abundances are often highest near, or associated with, phytoplankton blooms or macroalgae, and in association with detrital particles. As such, microbe-microbe, microbe-phage, cell-surface interactions and existence within biofilms are integral aspects of the *Roseobacter* lifestyle, which is rooted in a myriad of symbiotic relationships.



Mathias Middelboe is a professor in marine viral ecology at the Department of Biology, University of Copenhagen. He is especially interested in exploring how interactions between bacteriophages and bacteria drive phage and host diversity and evolution, and in resolving the role of bacteriophages in marine biogeochemical cycling. Moreover, his research has included more applied aspects of phage-bacteria interactions, exploring the potential and challenges of phages to control pathogenic bacteria in aquaculture.



Paul Fogg and his lab work on viruses that infect bacteria (bacteriophages). Bacteriophages are incredibly abundant and diverse, and work is ongoing to characterize novel phages and to identify phage-derived products that can be used to tackle problem bacterial populations. In addition, Paul's research focusses on an unusual family of phage-like particles known as Gene Transfer Agents (GTAs). GTAs are encoded by the bacterial host and can mediate high frequency exchange of DNA between bacteria. Unlike true viruses, GTAs package and transmit any DNA in the host cell with no preference for their own genes. The current aims of the lab are to understand the structure, regulation, and mechanisms of GTA production, their prevalence in pathogens and impact on bacterial evolution.