IBA Annual Meeting 2021, KEYNOTE SPEAKERS

Session 1 - Host-pathogen interaction

Marina Elisabeth Aspholm, *Norwegian University of Life Sciences (NMBU)*

Dr. Marina Aspholm is Professor at the Department of Paraclinical Sciences at the Norwegian University of Life Sciences. Marina has a doctorate in molecular biology and her research activities encompasses a combination of basic and applied research in the microbiology field with the aim to find solutions to challenges related to food-borne diseases, food security and sustainable food production.
Her research team has recently, together with their collaborators at the Vrije Universiteit in Brussels (VIB), Belgium, characterized a completely novel type of proteinaceous nanofibers, with structural properties and self-assembly mechanisms, that have never been described in any organism before. These structures also represent third type of pili ever described in Gram-positive bacteria and the first endospore pili that have been structurally and genetically characterized.

Title of the speech: Structural characterization of novel type of extremely heat and chemically resilient pili expressed on bacterial spores

Session 2 - Microbial omics in infection

Noelle Noyes, *University of Minnesota*

Dr. Noelle Noyes is an Assistant Professor in the Department of Veterinary Population Medicine Department at the University of Minnesota. Currently, her research focuses on improving the understanding of antibiotic resistance in livestock production, with the ultimate goal of optimizing both public health and food safety and security. Noelle was a USDA NIFA Post-Doctoral Fellow and an NIH T32 Pre-Doctoral Fellow. She was a recipient of the German Chancellor Fellowship from the Alexander von Humboldt Foundation, and received her MA from Osnabrueck University and her BA from Amherst College. Noelle completed a dual-degree PhD-DVM program at Colorado State University before joining the University of Minnesota faculty. Currently, her lab is conducting studies on microbiome, pathogen and antibiotic resistance issues related to livestock production and food safety.

Title of the speech: Infection, antibiotics, resistance and the microbiome: What happens when, and how?

Session 3 - One Health perspective on AMR

Line Vold, *National Institute of Public Health*

Dr. Line Vold is the department director in the National Institute of Public Health's department for infection control and emergency preparedness. She has played a prominent role during the coronavirus pandemic in 2019–2020. She has a doctorate in veterinary medicine and a European Field Epidemiology degree (EPIET). Her main competence is zoonotic pathogens being transmitted through food and water.

Title of the speech: Pandemics and preparedness (tentative)

Session 4 - Novel antimicrobials and drug discovery

Beatriz Martínez, *The Dairy Research Institute of Asturias (Instituto de Productos Lácteos de Asturias – IPLA)*

Dr. Beatriz Martínez is a molecular microbiologist studying the mode of action of bacteriocins and bacteriophages and the resistance mechanisms. She got her PhD in Biology in 1996 and is a principal investigator at IPLA-CSIC since 2003. Her main scientific contributions have been the structural and functional characterization of Lcn972, the first non-lantibiotic bacteriocin targeting the cell wall precursor lipid II and unveiling the cell envelope stress response in Lactococcus lactis. She has also actively participated in the implementation of bacteriophages as antimicrobials.

Title of the speech: Bacteriocins and bacteriophages: from bioinspiration to the clinic

Abstract: When looking for solutions, Science often observes nature for bioinspiration. In the era of the antibiotic crisis, novel antimicrobials are sought to fight multidrug resistant pathogens. Bacteriocins are antimicrobial peptides synthesized by bacteria. Initially proposed as natural antimicrobials for food biopreservation, they are slowly moving into the clinic. On the contrary, bacteriophages, viruses that exclusively infect and often kill bacteria, have been proposed as anti-infectives right after their discovery. In this talk, the properties and the mode of action of bacteriocins and bacteriophages will be reviewed with special emphasis on the advantages and disadvantages of their use against antibiotic resistant bacteria.