

Beneficial Microbes: Food, Pharma, Aqua & Beverages Industry

August 25-27, 2015 Valencia, Spain

Re-programming the gut: Bacteriophages and their roles in modifying the gastrointestinal microflora

Lawrence D Goodridge
McGill University, Canada

While it has long been understood that micro-organisms in the human gut play an important role in digestive health, more recent research indicates that gut bacteria may relate to wider aspects of health, including obesity and metabolic health. The role that bacteriophages play in modulating the gut microflora and potentially the systemic health of animals (including humans) is increasing being recognized. The animal Gastrointestinal Tract (GIT) contains 10¹⁵ bacteriophages, which are collectively referred to as the phageome. Individual phageomes vary depending on age and health, thus providing a useful biomarker of animal health as well as suggesting potential interventions that could be targeted at the gut microbiota. Additionally, recent research has shed light on how the phageome actively modulates the microflora as well as the survival, and thus efficacy of probiotic bacteria within the animal GIT. For example, phages that are unique to individual bacterial isolates have been shown to act as a predator, infecting and killing similar, competing bacterial strains, providing a competitive advantage to the bacteria harbouring the phage, by decreasing competition for available nutrients in the GIT. In this way, phages are expected to have a significant role in driving the biodiversity of the complex ecosystem of the animal GIT. Further exploration is necessary in order to harness the enormous potential of the phageome to reprogram the microflora of the GIT, either to prevent diseases from occurring or in response to an active disease.

Biography

Lawrence D Goodridge received his PhD from the University of Guelph, Ontario, Canada with a major emphasis in Food Microbiology and Food Safety. Currently, he is the Ian and Jayne Munro Chair in Food Safety at McGill University. His primary research interest is in the use of bacteriophages to study and solve problems associated with the production of food. He has published more than 55 peer reviewed publications and book chapters on topics related to food safety.

lawrence.goodridge@mcgill.ca

Notes: