

“Front Line of the Microbiome Researches” -Drug discovery, Agricultural, Environment-

2018.10.12 fri

Place ANNEX HALL F204

13:30-14:30

Microorganisms show various functions, through interacting with human, animals, plants, and microbes themselves. While it is hard to culture most microbes, AIST has developed various kinds of analytical techniques, and promotes the microbiome study for many aspects. AIST pushes forward precision management technology development and the standardization of the microbiome measurement, and supports your microbiome research and developments. Furthermore, we will introduce recent our research, for example, elucidation of the variety and function of symbiosis microbes of pests, excavation of the new functions including the recovery of energy and resources from liquid wastes, through analyses of the variety and genome information of the microbes.

Department of Life Science and Biotechnology, AIST, Innovation Coordinator **Masanori Gotoh**

13:30-13:50 Improving the reliability and comparability of microbiome measurements

Biomedical Research Institute, AIST, Principal Research Manager **Yuji Sekiguchi**

Next generation DNA sequencing-based metagenomics has already become established as a principal technique in microbiome research, being used increasingly in clinical diagnostics settings. The development of bioanalytical tools for comprehensive quality control and quantification has, however, been largely insufficient. The research described here represents a leading development and demonstration of the use of synthetic spike-in referenes in metagenomic analysis of complex microbiome. We are also developing novel measurement tools for high-throughput and quantitative microbial detection and metagenomic analysis of complex microbiome in a range of ecosystems relevant to human health and the environment.

13:50-14:10 Pest management by controlling gut microbiota

Bioproduction Research Institute, AIST Senior Researcher **Yoshitomo Kikuchi**

A number of agricultural and hygienic pests possess symbiotic microorganisms in their bodies. Since the symbiotic microorganisms play a pivotal role in host metabolism and are essential for survival, development and reproduction of the host insects, these symbionts will be a novel target for pest control. We have revealed molecular mechanisms underpinning the insect-microbe intimate associations, which may serve a new molecular target for controlling pest insects.

14:10-14:30 Deciphering the wastewater sludge microbiome

Bioproduction Research Institute, AIST Senior Researcher **Takashi Narihiro**

Wastewater treatment technologies have been developed to remediate municipal sewage and industrial wastewater constituents and have become the underlying infrastructure for society. Within the processes, diverse microorganisms form “sludge” and play a central role in wastewater remediation. However, ecophysiological functions of wastewater sludge microbiome is still unclear. Here, we introduce the recent progress in the research of wastewater sludge microbiome by employing genomic and metagenomic approaches.