Contribution ID: **116** Type: **Talk from invited speaker**

Genetic perturbation of gut bacteria with engineered phage vectors and CRISPR-Cas systems

Tuesday, 6 October 2026 11:00 (30 minutes)

The crucial role of the gut microbiome in human health has driven a need to understand bacterial function within their complex native ecosystem. CRISPR-Cas screens have become a powerful method to systematically assess the importance of bacterial genes for growth in different conditions, and are being adapted to the study of gut bacteria. We performed screens in different *E. coli* strains colonizing the mouse gut, revealing complex trophic interactions and adaptation strategies. We further investigate the use of phages as delivery vectors to directly modify target bacteria within the gut. Work performed with Eligo Bioscience demonstrated the feasibility of inactivating target genes by base editing, directly in the gut of mice. I will further discuss various strategies to overcome remaining challenges associated with DNA delivery to bacteria in the complex environment of the gut microbiome.

Reference #1

Reference #2

Reference #3

Author: BIKARD, David (Institut Pasteur)

Presenter: BIKARD, David (Institut Pasteur)

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