



Olga Soutourina PhD

Regulatory RNAs in Clostridia, Microbiology department,
Institute for Integrative Biology of the Cell (I2BC), Paris-Saclay University, France
<https://www.i2bc.paris-saclay.fr/regulatory-rnas-in-clostridia/>

RNA-based defense systems in the interactions of bacteria with phages

Lundi 3 novembre 2025 à 11 h 00

Pavillon Charles-Eugène Marchand, salle Hydro-Québec (1210)

Résumé:

To control genetic exchanges during the infection cycle, bacterial enteropathogens survive in phage-rich gut communities by relying on defense systems like CRISPR (clustered regularly interspaced short palindromic repeats)-Cas (CRISPR-associated), Toxin-Antitoxin (TA) and abortive infection (Abi) contributing to prophage maintenance, prevention of phage infection, and stress response. RNAs have emerged as key components of these systems including CRISPR RNAs and antitoxin RNAs within type I and type III TA. *Clostridioides difficile* (CD) is an important human enteropathogen and the major cause of nosocomial infections associated with antibiotic therapy. Many aspects of CD pathogenesis associated with adaptation strategies remain poorly understood. We characterized the RNA-based defense systems in CD that are frequently associated with prophages providing efficient defense against other invading phages or contributing to these regions stability. These data are shedding new light on the coordination of bacterial defense strategies and genome evolution, pertinent for the development of phage and genome editing, epidemiological monitoring and new therapeutic strategies.