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Mobile Genetic Elements: Who Moves Whom and For Whose Benefit?

Vendredi 13 juin 2025 à 11 h 00
Pavillon Charles-Eugène Marchand, salle Hydro-Québec (1210)

Résumé:

Horizontal transfer speeds up evolutionary processes as exemplified by the acquisition of virulence traits in emerging infectious agents and by antibiotic resistance in many human pathogens. Mobile genetic elements themselves evolve extremely fast in terms of their gene repertoires. This is partly because transfer is costly, their traits are often under balancing selection, and vectors of horizontal transfer compete within genomes. As a result, bacterial genomes are littered with mobile genetic elements that encode immune systems protecting them, and eventually their host, from other mobile genetic elements. Our most recent work shows that many, if not most, mobile genetic elements need to hijack the machinery of other mobile genetic elements to spread across microbial communities. Hence, changes in the gene repertoires of bacterial genomes are driven by tripartite interactions evolving within a parasitism-mutualism continuum.