

# MICROBIOLOGIE, INFECTIOLOGIE ET IMMUNOLOGIE

Université   
de Montréal

## CONFÉRENCE

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### Dr. Anupama Khare

Associate Research Scientist  
Department of Systems Biology, Columbia University, USA

#### Systems-level investigation of multi-species bacterial interactions

Microorganisms typically exist in multispecies communities, where species present in close proximity interact with each other. Such interactions affect the fitness and survival of the interacting species, but the mechanisms underlying such interactions, and potential adaptive pathways, remain largely uncharacterized. Most previous studies of multispecies systems have focused on the effect of a specific molecule or pathway of interest on exogenous species. Here, I utilized an unbiased genome-scale approach to identify and characterize multifaceted competition in a model two-species system containing *Pseudomonas aeruginosa* and *Escherichia coli*. I discovered both forms of ecological competition in the antagonism of *E. coli* by *P. aeruginosa* – sequestration of iron led to exploitative competition, while phenazine exposure engendered interference competition. I also identified adaptive evolutionary trajectories of *E. coli* that increase resistance to *P. aeruginosa* toxins using laboratory evolution studies, observing parallel molecular evolution and adaptive convergence at the gene-level. My study thus reveals the molecular complexity of a simple two-species interaction, and is an important first-step in the application of systems biology to detailed molecular dissection of interactions within native multispecies systems.

**Jeudi 23 février 2017 à 11 h 30**  
**Pavillon Roger-Gaudry, salle P-217**

#### EN VISIOCONFÉRENCE :

**Campus de Saint-Hyacinthe, salle 2950**  
**Campus de la Mauricie, salle U4-418, 4<sup>e</sup> Étage du Pavillon d'Enseignement**  
**Hôpital Maisonneuve-Rosemont, salle 10, 1<sup>er</sup> étage du Pavillon J-A Desève**  
**Hôpital du Sacré-Cœur de Montréal, salle J1115 (Petit salon)**  
**Hôpital Notre-Dame du CHUM, salle K6202**  
**Hôpital Saint-Luc du CHUM, Auditorium PEA**

Invité par Dr Hugo Soudeyns  
Tél. : 514-343-6273  
Courriel : [hugo.soudeyns@umontreal.ca](mailto:hugo.soudeyns@umontreal.ca)