

## ***CONFÉRENCE***

« Conférence prononcée en anglais – Lecture given in English »

### **Sébastien FAUCHER**

Associate Professor  
Faculty of Agricultural and Environmental Sciences  
McGill University

**Titre de la conférence :**

« *Adaptation of Legionella pneumophila to heat shock* »

### **RESUME**

Abstract : Legionella pneumophila causes in humans a severe pneumonia called Legionnaires' disease. L. pneumophila inhabits engineered water systems, such as drinking water distribution systems. It is transmitted from water to humans via inhalation of contaminated aerosols. Superheat and flush is used to control L. pneumophila in water distribution systems. Unfortunately, L. pneumophila typically reappears in the system after a short time. Presumably, it survives in dead-ends that only reach the required temperature for a short period of time, creating selective pressures to evolve higher heat shock resistance. The goal of this study is to identify mechanism of adaptation of L. pneumophila to heat shock. An experimental evolution strategy was used to increase resistance of L. pneumophila to heat shock. After 70 passages, the treated lineages were able to survive a temperature of 59 °C for 15 minutes whereas the ancestor and the control lineages were only able to survive a temperature of 55 °C. Point mutations were identified by whole genome sequencing in several genes typically involved in heat shock resistance. The prevalence of point mutations in htpG was analyzed over time by western blot in two lineages. The results suggest that recombination plays a role in the speed of fixation of adaptive mutations in L. pneumophila.

**Jeudi 20 JANVIER 2022 à 11h30**  
**Diffusion en ligne via la plateforme Zoom**

<https://umontreal.zoom.us/j/85304659998?pwd=VHZOZ3VSR0dRUmBGdU83cU1JeUNhZz09>

ID de réunion : 853 0465 9998

Code secret : 715402

Invité par France DAIGLE  
Tél. 514-343-7396  
[france.daigle@umontreal.ca](mailto:france.daigle@umontreal.ca)