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# Journée des Doctorants

Lundi 14 Mars (9 h -14h)

Amphi Ampère – Bât. Gabriel

*Au programme : 8 posters, 11 présentations orales dont 1 invité surprise + 1 buffet*

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# Investigation of interconnections between AgrA and $\sigma^B$ regulons of *Listeria monocytogenes*

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*Listeria monocytogenes* is a pathogenic and ubiquitous bacterium, which is able to adapt and survive in several environments. It is one of the main causes of death associated with food contamination in the European Union, costing millions of euros annually in medical care. Environmental changes can trigger a change on the set of genes that are being expressed, allowing bacteria to adapt and survive different conditions. AgrA is the transcription regulator of the cell-cell communication Agr system, which is involved in a complex regulatory network mediating adaptation to environmental conditions including soil, biofilms and host infection. On the other hand,  $\sigma^B$  is a RNA polymerase factor involved in transcription by recognizing  $\sigma^B$  promoters' sequences, allowing the expression of a specific set of genes, for example in response to stress conditions. While  $\sigma^B$  down regulation of the *agr* operon has been reported in *Staphylococcus aureus*, this interconnection has only been suggested in *L. monocytogenes*.

The aim of this project is to have an inside view of AgrA and  $\sigma^B$  regulons crosstalk in *L. monocytogenes*.

Therefore, a collection of mutant and reporter strains will be constructed, the measurement of the regulators activities will be accessed by cellular fluorescence on both planktonic cells and biofilms, the mutants' phenotypes will be evaluated under specific environmental conditions, and the hypothetical role of sRNAs on the crosstalk will be studied.

With this study we hope to decipher the interconnection between AgrA and  $\sigma^B$  in the regulatory network of *L. monocytogenes*, accessing the hierarchy of the cell response under specific environmental conditions and understanding the cellular integration of biotic stimuli and harsh conditions.

Key-words: *Listeria monocytogenes*, cell-cell communication, stress response, environment, interconnection