Proposition de stage M2
2024/2025 Laboratoire de Biologie et Modélisation de la Cellule ENS-Lyon

Transport of effector proteins

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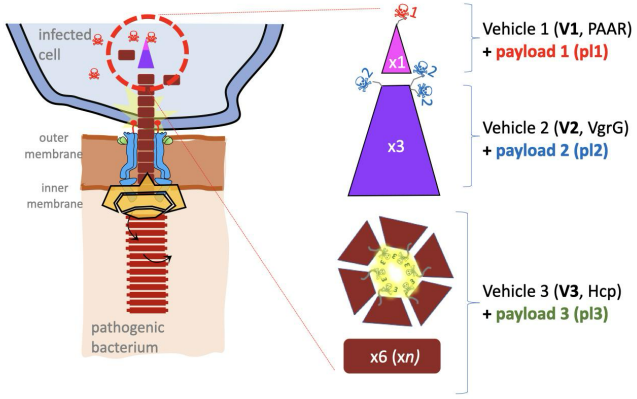
Bacterial infections are the second leading cause of death worldwide, killing 14 millions of people annually. At the molecular level, pathogenic bacteria deliver toxic proteins, called effectors, into infected cells or neighbouring bacteria thanks to secretion systems, which are protein nanomachines classified into different types according to their architecture, denoted T{1-11}SS (Type x Secretion System). In collaboration with the team of Eric Durand in Marseilles, we work on the T6SS and T6SS-effectors in the emerging opportunistic pathogen *Acinetobacter baumannii*.



This project will focus on the transport of the effectors that are non-covalently bound to the T6SS proteins. The Master intern will gather structural information from the PDB and predict models of protein-protein complexes using AlphaFold to decipher the transport mechanism. The Master intern should have a keen interest in structural bioinformatics and will work in the DAMM team at the Laboratoire de Biologie et Modélisation de la Cellule (LBMC).

Kandolo, O. *et al.* Acinetobacter type VI secretion system comprises a non-canonical membrane complex. *PLoS Pathog.* 19, e1011687 (2023).

Martin, J. AlphaFold2 Predicts Whether Proteins Interact Amidst Confounding Structural Compatibility. *J. Chem. Inf. Model.* (2024) doi:10.1021/acs.jcim.3c01805.