



Research Project

Defining the molecular basis of dynamic localization of type VI secretion system assembly in *Pseudomonas aeruginosa* (BIF Fellowship Maxim Kolesnikov)

Third-party funded project

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Status Completed

The multifunctional type VI secretion system (T6SS) allows bacteria to deliver effectors to both eukaryotic and prokaryotic cells and thus to gain advantage during bacterial competition as well as pathogenesis. T6SS can be conceptualized as a speargun. Its mode of action is similar to contractile phage tails attached to the cytosolic side of the cell envelope. Upon contraction of T6SS sheath, a needle is protruded from the cell with great force. Knowledge of T6SS assembly regulation remains limited. The opportunistic pathogen *Pseudomonas aeruginosa*, which encodes three T6SS, targets both prokaryotic and eukaryotic cells by localizing T6SS assembly in response to membrane perturbation, believed to be sensed via a dedicated sensor module. Using *P. aeruginosa* as a model, the molecular mechanism of signaling in T6SS assembly will be determined by structural, biochemical and microscopy approaches. This work will provide fundamental insights into signaling mechanisms and T6SS assembly in an important human pathogen.

Keywords type VI secretions system, *P. aeruginosa*

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