

Wednesday, May 6 at 11:00 (BBS auditorium)

## A tale of a tail: assembly and function of the bacterial flagellum and beyond

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Life has evolved diverse protein machines and bacteria provide many fascinating examples. Despite being unicellular organisms of relatively small size, bacteria produce sophisticated nanomachines with a high degree of self-organization. The motility organelle of bacteria, the flagellum, is a prime example of complex bacterial nanomachines. Flagella are by far the most prominent extracellular structures known in bacteria and made through self-assembly of several dozen different kinds of proteins and thus represents an ideal model system to study sub-cellular compartmentalization and self-organization.

Beyond motility, bacterial flagellar components are also co-opted in defense against bacteriophages. The recently identified Zorya anti-phage defense system, composed of membrane and cytoplasmic proteins homologous to flagellar stator components, demonstrates how bacterial nanomachines can be repurposed in response to phage threats.

In my talk, I will discuss our results on the dynamic self-assembly of bacterial flagella and how structure-based mutagenesis, functional assays, and live-cell fluorescence microscopy have enabled us to characterize the activation and phage-sensing mechanisms of the Zorya system.

Host: Thibaud Renault, ARNA laboratory