Session 15: Self-Assembly in Life Science

Session chairs: Nuno C. Santos (University of Lisbon, Portugal) & André Matagne (University of Liege, Belgium)

O-15.1 Invited speaker

Assembling the outer membrane of Gram-negative bacteria

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The biogenesis of the outer membrane in Gram-negative bacteria is a complex, tightly regulated process essential for cell viability and antibiotic resistance. In this talk, I will present our recent findings that shed light on key molecular players involved in outer membrane assembly. I will discuss the role of the lipoprotein RcsF as a stress sensor and its interaction with the β -barrel assembly machinery (BAM), with a focus on the central subunit BamA. In addition, I will introduce YedD, a previously uncharacterized protein that we identified as a new component of the Lpt pathway, and describe its structural and functional integration into the outer membrane assembly process. Together, our results reveal novel mechanistic insights into how the outer membrane is constructed and monitored, with implications for the development of new antibacterial strategies.