

Numerous export systems exist for the transport of proteins across the bacterial cytoplasmic membrane. The Palmer group work on two of these systems - The Tat and Type VII export systems. The Tat system exports folded proteins, often containing metal cofactors and is found in most bacteria and archaea. It is required for important bacterial cellular processes including respiration and photosynthesis. Proteins are targeted to the Tat system by N-terminal signal peptides containing a conserved twin arginine motif. The Palmer lab study the mechanism of protein export by the Tat pathway in the model organism *Escherichia coli*. The Type VII protein secretion system (T7SS) is found in Gram positive bacteria where it exports small helical substrates, also in a folded form. In the human pathogen *Staphylococcus aureus*, the T7SS is essential for disease pathogenesis. Recent studies on this secretion system by the Palmer group have identified novel substrates and unexpected roles for this secretion system. The seminar will cover aspects of both of these export pathways.