Pseudomonas aeruginosa is a pathogen that uses a sophisticated secretion system to inject toxins directly into the host cell. This Type III Secretion system is a multi-protein complex often described as a molecular syringe. Three proteins PcrV, PopB and PopD, are responsible for protein translocation into target cell cytosol. While the hydrophilic PcrV resides at the tip of the needle, the hydrophobic PopB and PopD insert into the target cell membrane and form a pore by which the secreted proteins translocate into the cytosol. We developed methods to purify these pore-forming proteins and assemble them into model membranes. With this system we showed that PopB and PopD spontaneously form a heterocomplex with an 8:8 stoichiometry. We are now studying the structure of the membrane-inserted PopB-PopD complex, and characterizing how the translocon complex works in both model and cell membranes. A precise understanding of the translocation process is required to design therapeutic agents that block protein injection and consequently bacterial infections.