

**Projekt 8 (P8): Protein import into the bacteria of the trypanosomatid *Angomonas deanei***

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The evolution of eukaryotic organelles from bacterial endosymbionts profoundly impacted eukaryotic biology. Our group is interested in the question of how a eukaryotic cell gains control over a bacterial intruder and transforms it into a beneficial endosymbiont that can give rise to an organelle over evolutionary time. For this purpose we study two model organisms: the trypanosomatid *Angomonas deanei* and the amoeba *Paulinella chromatophora*. Both organisms harbor a vertically inherited bacterial endosymbiont/evolutionary young bacterium-derived organelle in their cytoplasm. Preliminary results from our laboratory revealed that in both systems host-encoded proteins are specifically targeted to the bacterial endosymbionts. Some of these proteins seem to be derived from effectors of the host immune system. We hypothesize that these imported proteins play a key role in symbiont control. Aims of this project are to apply newly developed molecular tools for *A. deanei* to (i) study the cellular function of the imported proteins, (ii) characterize targeting- and import mechanism by which host-encoded proteins are specifically sorted to the endosymbiont. And (iii), furthermore it will be tested if the targeting mechanism is conserved between various endosymbiotic systems.