

Foldase-assisted folding and secretion of lipases from *Pseudomonas aeruginosa*

Supervisors / institute:

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Project background and description:

Proper folding and localization of proteins is a process of extraordinary importance within each living cell. Several enzymes are synthesized as inactive precursors and achieve their enzymatically active conformation in proper cell compartments only upon interaction with specific foldase proteins. An example produced by the Gram-negative bacterium *Pseudomonas aeruginosa* is the lipase LipA which requires the assistance of an inner membrane bound steric chaperone, the lipase-specific foldase Lif, for its conversion into an enzymatically active conformation. Just recently, we have demonstrated that *P. aeruginosa* lipases LipC and LipF also require the same foldase to achieve enzymatically active conformations. At present, the mechanism of foldase-mediated lipase folding and the role of the foldase for lipase secretion are still unknown.

Within this iGRASPseed project, we intend to (1) analyze the mechanisms by which the foldase converts lipases into their enzymatically active conformation, and (2) study the interactions of a foldase with the bacterial secretion machinery responsible for the secretion of lipases across the bacterial membranes.

Requirements:

Master degree in biology, biotechnology or biochemistry with experience in microbiology and molecular genetics.

Additional information:

<http://www.iet.uni-duesseldorf.de>