Project 6: The role of the lectins LecA and LecB in physiology and pathogenicity of *Pseudomonas aeruginosa*

Principal Investigators: **Jaeger, Karl-Erich, Univ.-Prof. Dr. rer.nat.**

Institute of Molecular Enzyme Technology (IMET)
Heinrich-Heine-University Düsseldorf
Research Center Juelich
Stetternicher Forst
D-52426 Juelich

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

Project summary

Lectins are proteins of non-immune origin that recognize and bind to specific carbohydrate structural epitopes and function as central mediators of information transfer in biological systems by interacting with glycoproteins, glycolipids and oligosaccharides. *Pseudomonas aeruginosa*, an opportunistic pathogen associated with chronic airway infections, synthesizes two lectins, LecA and LecB. Our previous studies showed that LecB resides in the outer membrane interacting with the major outer membrane porin OprF. A *P. aeruginosa oprF* deletion mutant released LecB into the culture supernatant and showed a significant decrease in haemagglutination activity. In *P. aeruginosa*, at least six different protein secretion pathways exist; however, the mechanism of LecB secretion is still unknown. This project aims to identify additional interaction partners of LecA and LecB and investigate the LecB secretion mechanism. Comparative transcriptomic and proteomic studies of *P. aeruginosa* PAO1 wild-type and appropriate *lec*-mutants will be used to identify genes and proteins involved in lectin biosynthesis and secretion.