Prof. Holger Dobbek

Faculty of Life Sciences
Department of Biology
Structural Biology / Biochemistry

Expertise
Prof. Dobbek analyses the biochemical principles of bacterial growth on substrates, i.e. carbon dioxide, carbon monoxide as well as aromatic compounds, which also are pollutants. The main focus lies on the functional and structural investigation of metalliferous enzymes that transform unreactive molecules in oxygen free conditions and thus enable bacteria to grow in a seemingly hostile environment. Developing new (biological) catalysts capable of energy-efficiently transforming carbon dioxide and monoxide is Prof. Dobbek's goal. Moreover these catalysts are designed to generate new enzymes for the biological decomposition of substances damaging to humans and the environment.

Scientific Services
- production of proteins under aerobic and anaerobic conditions (FPLC and HPLC procedures)
- robotic protein crystallization under standard conditions and in oxygen free conditions (glovebox technique)
- crystallographic structural analysis of proteins
- general methods in the field of structural bioinformatics
- methods to examine enzymatic processes, e.g. fast mixing methods (stopped-flow spectroscopy under aerobic and anaerobic conditions), analyses using HPLC, GC-MS, UV/Vis- and fluorescence spectroscopy, isothermal titration calorimetry under aerobic conditions

Topics / Trends
Biomolecules
Sustainability & Ressource Efficiency
Pharma(ceuticals)

Industries
Healthcare & Life Sciences