

Expression, synthesis, processing and intracellular transport of (membrane) proteins with an emphasis on own experimental problems
(1 SWS), Freitag, 29.10.2010, 14 00 Uhr
Mitte, Seminarraum, Institut für
Immunologie und Molekularbiologie,
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The course is intended for PhD students which express proteins from cloned genes to study their targeting and function or use overexpressing cells as a source to purify the protein of interest. Sometimes these approaches fail because the protein behaves differentially compared to the authentic protein present in untransfected cells. The reason for that behaviour might be that the DNA-construct used for expression does not encode the signals (amino acid sequences) for proper transport of the protein or those signals are masked by the attachment of additional amino acid sequences, such as a His- or GST-tag or a fluorescent proteins, e.g. GFP. In addition, the protein might not fold or function properly because essential protein modifications are not performed, especially if the protein is expressed in cells different from its source of origin.

The seminar starts with an overview on the topic in which the mechanism of protein transport and the intrinsic signals that govern targeting of the protein to the correct intracellular compartment are described. Special emphasis will be laid on transport of proteins along the exocytic pathway, i.e. from the endoplasmic reticulum via Golgi to the plasma membrane and the protein. Another focus will be on the methods that can be used to analyze processing of the protein and its targeting to a specific compartment. It is then expected that every student presents his PhD-project and discusses any transport-related problems that were encountered. The aim of the seminar is to find solutions for the problems and to eventually initiate co-operations between students from different institutes to share expertise and methods.