VI. Summary

Characterisation of the tissue-specific localization of the molecular chaperon Mdg1 and identification of cell-compartement-specific proteindomains

Molecular Chaperones, also known as heat shock proteins, are localized in all cell compartments and are important for protein folding, degradation and protein transport. Some chaperones change their subcellular localization due to alterations in environment. They are also very important for the development of organisms.

The aim of this thesis was the characterization of the subcellular localization of Mdg1, a molecular chaperon, and the responsible protein domains. In addition to that the localization of Mdg1 was characterized in adult mice and different stages of development.

The experiments were realised by using molecular and cell biological, proteinbiochemical and immunohistochemical methods.

The studies showed that the c-terminal domain CSGQ has an important role for the localization on membranes. The amino acids 96 to 125 and 180 to 222 are responsible for the association with the cytoskeleton. Under heat shock Mdg1 translocates into the nucleus and accumulates in the nucleoli. The c-terminal motif CSGQ is also responsible for this translocation. Furthermore the first and the last 30 amino acids (96 to 125 and 180 to 222) are important for the translocalization into the nucleoli.

The investigation of the localization of Mdg1 in different stages of development and in adult mice showed that this protein could be recognised in all stages especially in differentiating cells. In adult mice Mdg1 could be detected particularly in secretory cells.

The results lead to conclusions about the function of Mdg1. As the protein is mainly found in differentiating and secretory cells it could participate in the cell cycle, because these cells are in the rest phase. So Mdg1 could cause a cell cycle arrest to make a differentiation and secretion possible.