

Breast cancer is a leading cause of death among women in many countries. In the treatment of the breast cancer cytotoxic drugs (chemotherapy) are often used. Interindividual differences of drug response are an important cause of treatment failures. Bioavailability also depends on a major extent from the expression and activity of drug transport across biomembranes. In particular efflux transporters of the ATP-binding cassette family such as ABCB1, ABCC1 and ABCC2 have been identified as major determinants of chemoresistance in tumor cells. It was hypothesized that variance in the gene expression of membrane transporters and their genetic variance could explain at least in part interindividual differences of pharmacokinetics and clinical outcome of a variety of drugs. This thesis focuses on the functional significance of gene expression of ABCB1, ABCC1 and ABCC2 and single nucleotide polymorphisms in ABCC1 gene.