Abstract:

This thesis focuses on the importance of the heme catabolic pathway in chronic hepatitis C (HCV). The aim is mainly to investigate, whether expresion/activity of key enzymes of the heme catabolic pathway, heme oxygenase (HMOX) and biliverdin reductase (BLVRA) in the liver and blood (*study A*) or promoter variations of *HMOX1* and UDP-glucuronosyltransferase (*UGT1A1*) (*study B*) may be associated with the progression of fibrosis and may also predict antiviral treatment outcome in patients chronically infected with HCV.

We set up a new sensitive method to quantify HMOX activity by reduction gas chromatography. We developed and extensively validated RealTime PCR assay for *HMOX* and *BLVRA* expression in the liver and peripheral blood leucocytes (PBL). The (GT)n and (TA)n dinucleotide variations in *HMOX1* and *UGT1A1* gene promoters, respectively, were determined by fragment analysis.

No association was detected between either expression of *HMOX/BLVRA* or the *HMOX1/ UGT1A1* promoter variants and the individual histological stages of liver disease in the HCV positive patients. A marked difference in *BLVRA* expression in PBL between the sustained responders (SVR) and patients with treatment failure (NVR) was detected before antiviral treatment and during the follow-up. Our data suggests, that *BLVRA* basal expression in PBL may be an independent predictor of SVR.