Parenteral modes are the most efficient routes of HIV transmission and thus, people who inject drugs (PWID) are considered to be one of the most vulnerable groups. However, PWID populations often reveal a number of individuals who despite being highly exposed do not get infected. In addition to genetic polymorphisms, coinfections may also play a role in HIV acquisition. Although most coinfections have adverse effects on HIV some (e.g. Human T-lymphotropic virus [HTLV] and Human Pegivirus [HPgV]) have beneficial.

The aim of this thesis was to describe the prevalence of HIV coinfections (HTLV-1/2, HPgV) and a polymorphism in the interferon-lambda-4 gene (IFN $\lambda$ 4) and to evaluate their association with HIV acquisition. The study was conducted among 345 PWID. Healthy volunteers and blood donors were used as control groups.

We found one of the PWID to be HTLV-2 positive and the rest were HTLV-1/2 negative. As expected, all healthy volunteers were negative for HTLV-1/2. HPgV viremia was present in third of PWID but the prevalence of HPgV seropositivity was significantly lower. The rate of HPgV viremia was five times lower among healthy volunteers but the rate of seropositivity was similar to PWID (1,7% and 2,3%, respectively). High rate of HPgV viremia among PWID might at least partially be due to their risk behaviour but it may also suggest that they are unable to clear HPgV viremia due to the immunocompromising effect of HIV and other infections. The low HPgV seropositivity detected in our study could be due to characteristics inherent to HPgV infection – the clearance of viremia is not always followed by the production of antibodies and produced antibodies might disappear over time. The IFN $\lambda$ 4 rs12979860 study revealed no associations between rs12979860 genotypes and HCV acquisition. However, we found the TT genotype to increase the susceptibility to HIV. According to the interaction analysis the scale of the influence of TT genotype decreased with increasing duration of intravenous drug use.

In conclusion, HLTV-1/2 is rare in Estonia suggesting that there is no need for routine testing for these viruses. HPgV is common among PWID and could affect HIV acquisition and disease progression in this area. IFN $\lambda$ 4 rs12979860 TT genotype increases susceptibility to HIV but continuing risk behaviour diminishes the impact of this polymorphism.