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Summary:

Ascaris suum/Hepatitis E virus coinfection in pigs - prevalence, clinical course, and implications for liver health.

The funded project of Dr. med. vet. Josephine Schlosser-Brandenburg addresses the simultaneous infection (= coinfection) of pigs with the helminth *Ascaris suum* and the Hepatitis E virus, which causes liver inflammation. The intestinal parasite *A. suum* and the Hepatitis E virus belong to widespread pathogens in pig production. Since both pathogens are transmissible from animals to humans and case numbers of human Hepatitis E virus infections are increasing significantly in Germany, these pathogens are of considerable interest for public health.

Despite the frequent occurrence of both zoonotic pathogens in pig farming, studies on the prevalence of coinfections and their direct impact on pig health have been lacking so far. The aim of the project is therefore to determine the frequency of coinfections with *A. suum* and the Hepatitis E virus in pig fattening in a first work package in order to assess their significance for pig herds for the first time. In order to investigate the influence of this coinfection on pig health in more detail, the course of Hepatitis E virus infection in simultaneously worm-infected pigs will be analyzed in a second work package. The planned studies will focus on the liver, since it is both the site of virus replication and the target organ during larval migration of *A. suum*. In this context, opposing immune responses occur in the liver, and it can be assumed that due to frequent reinfection with the intestinal parasite, anti-helminth immunity clearly predominates, which could result in an inadequate antiviral immune response. In a third work package, deworming will be evaluated as an intervention measure during coinfection. Since neither therapy nor vaccination against the Hepatitis E virus is approved for pigs, targeted deworming could be considered an infection-preventive measure if it is confirmed to lead to a reduction in virus replication.

Based on the project, new approaches could be created to reduce Hepatitis E virus transmission through targeted *Ascaris* control strategies. This is highly relevant for the food safety of pork/liver, as well as for the exposure of veterinarians, slaughterhouse personnel and farmers.

