

P015

Vaccine to Inhibit Autochthonous Transmission of Hepatitis (VaccinATE)I. Hrabal¹, K. Dinkelborg², P. Behrendt³, M. Cornberg⁴, H. Wedemeier⁵, H. Völzke⁶, M. Eiden¹, M. Groschup¹

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Hepatitis E virus (HEV) infections are a largely underestimated public health problem in Europe affecting an estimated 420,000 humans in Germany every year. HEV infections in central Europe are primarily caused by HEV genotype 3, which is highly prevalent in pigs and wild boar. Infections are mostly attributed to consumption of contaminated meat products or close contact with infected animals. Usually, infected individuals have mild symptoms, but patients with underlying liver diseases or increased alcohol consumption are at risk to develop acute liver injury. Moreover, HEV can cause chronic infections in immunocompromised individuals, with the potential to rapidly progress to liver fibrosis and cirrhosis and associated complications. Currently, no approved treatment is available for acute or chronic HEV infection. Approximately 5% of slaughtered pigs have an ongoing HEV infection and up to 20% of tested sausages in German stores are HEV RNA positive and therefore carry the risk to cause infections in humans. The VaccinATE project aims to perform a proof-of-concept study to evaluate different vaccination strategies of pigs for HEV which could consequently prevent the transmission of HEV to humans - supporting the One Health idea of this application (Fig. 1). In addition, the anti-HEV IgG seroprevalence and the effect of external factors over time will be determined in human population by using the well-controlled SHIP cohort (population-based project Study of Health in Pomerania), followed by in depth analysis of antibody profiles, identification of concomitant extrahepatic manifestations and underlying epidemiological data (Fig. 2).