Abstract for Rydal Hall 2019

**Expression of entry receptors for hepatitis C virus on equine cells**

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Equine hepacivirus A (EqHV) was first identified in 2011. EqHV is a hepatotropic virus that has a prevalence of <1 – 34.1% in horses. Phylogenetically, EqHV is most closely related to Hepatitis C virus (HCV) and may thus share the same entry receptors. The main entry receptors used by HCV for human hepatocytes are Cluster of Differentiation 81 (CD81), occludin (OCLN), claudin-1 (CLDN-1) and Scavenger Receptor Class B Member 1 (SR-B1). The distribution and expression of two entry receptors on equine cells by flow cytometry and immunohistochemistry was investigated. Using a human liver cell line (Huh-7) as a positive control, antibodies against human CD81 and OCLN appeared to cross-react with antigens on equine cells. The expression of CD81 and OCLN in equine hepatocytes via flow cytometric analysis was 98.88% and 88.37%, respectively, which is comparable to Huh-7 cells. Immunohistochemistry revealed that CD81 was present on endothelial cells and sinusoidal cells of the equine liver and the allantochorion of the equine placenta. In the liver, OCLN was expressed on hepatocytic nuclei and endothelial cells. These preliminary findings will enable further comparative investigation into the mechanisms underlying the entry of EqHV and may inform future studies on the pathogenesis and mode(s) of transmission.

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