Humanized Hepatitis B Virus Transgenic Mouse Model

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Technology description

Market Opportunity

Hepatitis B virus (HBV) has infected two billion people worldwide and is a major public health problem. Pre-clinical mouse experiments and human clinical studies suggest that invariant natural killer T (iNKT) cells play a key role in anti-HBV immunity. A humanized mouse model will advance the development of therapeutics which activate iNKT cell mobilization against HBV.

USC Solution

Researchers at USC have developed humanized HBV transgenic (HBVtg) mice by introducing the HBV transgene into CD1d-knock in mice. HBVtg mice express human CD1d and model human iNKT cell development. Introduction of HBV reduced the iNKT cell population, consistent with the decline in circulating iNKT cells seen in patients with chronic hepatitis B. Ex vivo experiments showed that the remaining iNKT cells are still functional. This novel humanized HBVtg mouse model can serve as a new platform for identifying anti-HBV therapeutic agents.

Key Publication

Exploring the Therapeutic Potentials of iNKT Cells for Anti-HBV Treatment. 2014.Pathogens.

Application area

Pre-clinical evaluation of therapies against HBV in a humanized immune system
Research tool for investigation of iNKT cell-mediated anti-HBV immunity

Institution

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