PhD Position, SUMMARY OF THE PROJECT

Title «From the immune liver microenvironment during chronic hepatitis B to the mechanisms of liver fibrosis progression »

Keywords:

Chronic hepatitis B, Fibrosis, Immune micro-environment, Inflammation, Antigen-specific T cells

Abstract :

Hepatitis B virus (HBV) infection is a major risk factor for hepatitis, liver fibrosis, cirrhosis, and hepatocellular carcinoma (HCC). Inflammation plays an important role in viral clearance, but excessive or inadequate inflammation can cause liver damages and may accelerate fibrosis progression and HCC development. Chronic HBV infection (HBC) causes dysfunction of innate and adaptive immune responses involving monocytes/macrophages, dendritic cells (DC), natural killer (NK) cells, B cells and T cells. However, the mechanisms that link HBV-induced immune alterations and hepatic damages remain poorly understood. In this project, we aim to study the immune microenvironment in different conspicuous and homogeneous groups of CHB patients, belonging to different stages of fibrosis, and as compared to healthy individuals. Using the cutting-edge multiplex immunofluorescence technology (CODEX), we will analyze the *in situ* distribution, localization and cell-cell interaction of key immune cell subsets as well as their associated antiviral responses. In a mechanistic approach, we will study the functional profile of HBV-specific T cells in their capacity to generate cytotoxic responses and to produce pro- and anti-fibrotic cytokines in response to cognate antigen stimulation. We will also evaluate HBV virologic markers such as serum HBV DNA, serum HBV RNA, and HBs quantification and look for correlation with fibrosis stage. Finally, this research program may unravel novel biological mechanisms associated with fibrosis progression as well as potential prognosis biomarkers and new therapeutic targets.

Contact

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