

## **Role of CD147 in development of liver fibrosis**

**Host School/Institute: Centenary Institute of Cancer Medicine and Cell Biology,  
Central Clinical School**

**URL: <http://www.centenary.usyd.edu.au>**

**Project Code: CCS14**

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### Description of Project:

Development of liver disease begins with liver fibrosis, and remains relatively undetected until more than 70% of the liver is damaged with bands of proteins which interfere with the normal function of the organ. The major causes of fibrosis are alcohol abuse, Hepatitis and hepatocellular carcinoma, and upon removal, the process can be reversed.

Liver fibrosis is the result of an imbalanced turnover of the Extracellular matrix (ECM), where there is a build up of ECM proteins, predominantly collagen I. Normal turnover is achieved by the secretion the endopeptidases family of Matrix-metalloproteinases (MMPs) and their regulators, the best studied of which are Tissue inhibitors of Metalloproteinases (TIMPs).

One protein, which has been found to be associated with high levels of MMP expression in tumor cell/fibroblast cultures, is EMMPRIN/CD147. CD147 has been shown to induce MMP expression and thus favor ECM breakdown. Previous work at the Centenary Institute has shown expression of CD147 within hepatocytes is increased in cirrhosis. Therefore the aim of this project is to determine the function of CD147 in the liver and its possible involvement in liver fibrosis.

To study this role, a quantitative analysis of the protein and its known associates, MMPs, TIMPs and collagen I will be measured using Immunohistochemistry, PCR, zymography and Western blotting. We will assess CD147 expression in liver tissue, isolated hepatocyte as well as cell lines of endothelial cell, hepatocytes and hepatic stellate cells.

The overall aim of the project is to examine the function of CD147 in hepatocytes, particularly in relation to its role in fibrosis. Once this is established its function and regulation can be further analyzed and a possible role in reversal of fibrosis can be investigated.

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