Glycomic Monitoring of HCC, fibrosis and cirrhosis in Chinese patients infected with hepatitis B - "Hepatitis B" - BL/02/C42

(Geographic) study area (country/region) : China/Ghent

Context and objectives
Most serum N-linked glycoproteins are synthesized by the liver and by B-lymphocytes. Any changes in serum total N-glycans could reflect alteration of liver or B-lymphocyte physiology. Our previous studies in Chinese liver fibrotic group and HCC patients infected with HBV showed alterations in N-glycan profilings. This project is aimed at studying glycomics during progress of liver fibrosis and HCC and has major objectives:

To evaluate the usefulness of glycomics biomarker for diagnosis of liver fibrosis in follow up the drug treatment in Chinese patients with fibrosis or cirrhosis.

To evaluate the usefulness of our N-glycomics HCC marker for early detection of cancer; to evaluate the usefulness of glycomics marker in a follow-up the treatment with Chinese antitumor herbs and, or receiving chemotherapy.

To evaluate the usefulness of glycomics for pre-screening Chinese antifibrotic herbs and antitumor herbs (TCMs) in a rodent model and a HCC rodent model by comparing them to existing Western drugs.

Methodology
- The lab in Shanghai (EHBH), China, is responsible for the collection of the blood serum samples from the Chinese patients with fibrosis, cirrhosis or HCC, and the set-up of an extensive clinical data set for the subjects.
- The lab in Ghent University is responsible for the glycan profiling analysis of the blood serum samples from Chinese patients.
- An appropriate analysis of the clinical, biochemical data and N-glycome data is performed in the group in Ghent University.
- Glycomics study in rodent HCC model induced by diethylnitrosamine is carried out in China and Ghent.

Results
- We found that in HBV patients, like in HCV patients, several serum N-glycans were altered during development of liver fibrosis. We further confirmed glycome HCC biomarker in a large cohort of Chinese HCC patients.
- After the treatment in the fibrotic liver patients or HCC, the glycome biomarkers are reversed, respectively.
- The glycosylation alteration during liver cancer progress was observed in the DENA induced HCC mouse and rat. We propose a GlycoTest model using the serum glycan markers to monitor the progression of cirrhosis and HCC in the DENA induced HCC-rat.

Products and services
Peer reviewed papers:
Abstracts:

(1) Chitty Chen. Glycome Biomarker to Detect Early Stage. BIT's 2nd Annual Congress and Expo of Molecular Diagnostics (CEMD-2009), November 19-21, 2009, Beijing, China.


Execution

**Period:** 01.12.2007—31.11.2009

**Laboratory/network:**

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**Discipline**

- Medicine  
- Cancer  
- Liver studies