The Chinese University of Hong Kong
Non-confidential Abstract of Technology Disclosure

Title:

Genomic Markers of Hepatitis B Virus in Hepatocellular Carcinoma

CUHK Ref. No.:

04/MED/167

Inventor:

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Patent Status:

- US Patent Pending
- US CIP Patent Pending
- PCT Application Filed
- Chinese Patent Pending
- Hong Kong Patent Pending

Non-confidential abstract:

Despite strong epidemiological evidence correlating hepatitis B virus (HBV) infection and hepatocellular carcinoma (HCC), no viral marker(s) has been identified to predict development of liver cancer. We have established a database of viral genome and clinical data based on a cohort of HBV-infected patients who developed HCC and an age-matched control cohort who had chronic hepatitis B without HCC. Complete genomic sequencing of HBV has been performed in all patients. The genomic information has been analyzed by computer data mining methods. Our findings show that HBV can be classified into different genotypes and subtypes. Each HBV subtype with several genomic markers of HCC development have been identified. An algorithm using the serum genomic markers of HBV to predict HCC has been developed with an overall accuracy of over 75%.

Advantage:

Currently, there is no molecular marker that can predict hepatocellular carcinoma (HCC) among chronic hepatitis B patients. The conventional methods for surveillance of hepatocellular carcinoma are serum alfa-fetoprotein levels as well as abdominal ultrasound examination. These markers can pick up possible early cancers for further confirmatory investigation. However, HCC surveillance by alfa-fetoprotein checking and ultrasound scanning has to be done regularly, usually 6 monthly. With the vast population of chronic hepatitis B patients particularly in Southeast Asia, it is almost impossible to perform HCC surveillance to every patient in terms of public health resource. The Technology of our current work is a panel of hepatitis B virus (HBV) genomic markers and a related algorithm to stratify the risk of patients for HCC. The genomic algorithm can predict cancer risk among chronic hepatitis B patients. This test is so far unique in the market.

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Commercial Potential:

The major purpose of the current Technology is to predict cancer risk among chronic hepatitis B patients. This can be used as a reference to guide the allocation of public health resource in HCC surveillance. In other words, those patients who have higher cancer risk will deserve a more aggressive surveillance program, and vice versa.

For further queries, please contact:

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