A Viral Exposure Signature to Define and Detect Early Onset Hepatocellular Carcinoma

Summary (1024-character limit)
Researchers at the National Cancer Institute (NCI) have identified a biomarker signature of viral infection that correlates with hepatocellular carcinoma (HCC) incidence in at-risk individuals. It has been validated in a longitudinal cohort to detect HCC with high sensitivity and specificity up to 7 years prior to clinical diagnosis. This viral exposure signature can be easily implemented into diagnostic assays for screening of HCC and is available for licensing and/or co-development opportunities.

NIH Reference Number
E-174-2019

Product Type
- Diagnostics

Keywords
- Hepatocellular Carcinoma, HCC, Liver Cancer, Viral Infection, Biomarker, Wang

Collaboration Opportunity
This invention is available for licensing and co-development.

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Description of Technology
Early detection of liver cancer, such as hepatocellular carcinoma (HCC), is key to improve cancer-related mortality. More than 800,000 people are diagnosed with this cancer each year throughout the world. Liver cancer is also a leading cause of cancer deaths worldwide, accounting for more than 700,000 deaths each year. Currently, millions of Americans and possibly billions in the world are considered at risk for developing liver cancer. Individuals are considered at risk for developing liver cancer if they have underlying chronic liver diseases such as fibrosis and cirrhosis which in turn may be caused by viral infections and inflammation. However, this risk greatly varies among individuals and the current methods for early detection and surveillance are inadequate.

Scientists at the National Cancer Institute’s (NCI) Laboratory of Human Carcinogenesis have established a biomarker signature of viral infection that can predict HCC among at-risk individuals up to 7 years prior...
to their clinical diagnosis. This viral exposure signature has been identified through serological profiling of individuals from a case-control study and validated in a cohort of at-risk individuals who were followed up to 20 years for the development of HCC. The specificity and sensitivity of this biomarker signature is superior to current available methods of diagnosis such as alpha-fetoprotein screening.

NCI is seeking proposals from parties interested in co-development and licensing opportunities to employ this viral exposure signature in diagnostic assays of early onset HCC.

Potential Commercial Applications
- Diagnostic assay for early detection and surveillance of HCC
- Companion diagnostics for HCC therapeutic development

Competitive Advantages
- The large market for hepatocellular carcinoma is in need of improved diagnostics
- Detection of cancer patients from at-risk individuals up to 7 years prior to clinical diagnosis
- Potential competitive cost, easy to implement
- Serological profiling allows easy access to patient samples

Inventor(s)
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Development Stage
- Pre-clinical (in vivo)

Patent Status

Related Technologies
- E-101-2016 - A Gene-Based Prognostic for Hepatocellular Carcinoma Patient Response to Adjuvant Transcatheter Arterial Chemoembolization
- E-024-2009 - Gene Signature for Predicting Solid Tumors Patient Prognosis

Therapeutic Area
- Cancer/Neoplasm