conferenceseries.com

2nd International Conference on HEPATITIS

June 14, 2021 | Webinar

Short chain fatty Acids delay the pathogenesis of hepatitis B virus-associated hepatocellular carcinoma in an HBx transgenic mouse model

Mark Feitelson

Dept. of Biology, Temple University. Philadelphia, PA

Chronic infection with hepatitis B virus (HBV) is a major risk factor for hepatocellular carcinoma (HCC). The HBV encoded oncoprotein, HBx, alters host gene expression and the activity of multiple signal transduction pathways. Short chain fatty acids (SCFAs) have strong anti-inflammatory and anti-neoplastic properties, suggesting that they may block the progression of chronic liver disease (CLD) to HCC. This hypothesis was evaluated in HBx transgenic (HBxTg) mice fed SCFAs. Groups of HBxTg mice were fed with SCFAs or vehicle from 6-9 months of age and then assessed for dysplasia, and from 9-12 months of age and then assessed for HCC. Livers from 12 mo. old mice were then analyzed for changes in gene expression by mass spectrometry-based proteomics. SCFA-fed mice had significantly fewer dysplastic and HCC nodules compared to PBS fed controls at 9 and 12 months, respectively. Pathway analysis of SCFA-fed mice showed down-regulation of several signaling pathways altered by HBx in human CLD and HCC, including those involved in inflammation, PI3K, EGF, and Ras. SCFA treatment decreased activity of the Ras pathway, which is constitutively activated by HBx. In vitro work showed that SCFAs reduced cell viability in HBx-transfected cell lines in a dose-dependent manner while the viability of primary human hepatocytes was unaffected. These results show for the first time that SCFAs may oppose some of the carcinogenic alterations mediated by HBx, thus indicating that SCFAs may delay the pathogenesis of HBV-associated HCC.

Biography

Mark Feitelson received his Ph.D. in Microbiology and Immunology in 1979 from UCLA. He began his work with hepatitis B at Stanford University, and was then recruited to the Fox Chase Cancer Center by Dr. Baruch Blumberg (Nobel laureate). In 1991, Dr. Feitelson moved to Thomas Jefferson University. In 2007, Dr. Feitelson went to Temple University as a Professor of Biology. His work has been supported by NIH, industry and foundations, has more than 150 publications, and 180 abstracts. He is also CSO of SFA Therapeutics. He has 11 patents, has mentored over 130 students.

feitelso@temple.edu