

Department of Biomedical Sciences
presents a seminar series in Cancer Biology, Biotherapy
and Nanomedicine



“Epigenetic Mechanisms by the Hepatitis B Virus X Protein in Hepatocarcinogenesis”

Professor Hong Fan
Medical School of Southeast University
Key Laboratory of Developmental Genes and Human Diseases in
Ministry of Education

Date : 17 February 2017

Time: 5:00 pm to 6:30 pm

Venue: 2-130, 1/F, Block 2, To Yuen Building, City University of Hong Kong

Abstract

Hepatocellular carcinoma (HCC) remains one of the most prevalent malignant diseases worldwide. Chronic infection by hepatitis B virus (HBV) is a major risk factor for hepatocarcinogenesis in China. Among HBV proteins, HBx has been termed “viral oncoprotein” because of its pleiotropic biological activities on cell cycle regulation, signaling pathways, DNA repair, and its critical role during hepatocarcinogenesis. Evidences showed that HBx protein transactivation transcription of a variety of viral and host genes by its effects on the promoters and enhancers depend on genetic mechanism, and inactivate host genes known to be involved in tumor suppression and/or activate host genes with oncogenic activity through HBx-induced epigenetic changes. These epigenetic regulation involve in several alterations. i) HBX-induced DNA hypermethylation of tumor suppression genes (TSGs) and/or specific DNA hypomethylation of global genomic DNA and some oncogenes. ii) HBX-induced aberrant histone modifications in HCC. iii) HBX-induced alterations in miRNAs and lncRNAs in HCC, etc. Recent years, our data showed that HBx upregulated DNMTs inactivate TSGs, such as MTSS1, RASSF1A, PTEN, RIZ1, CDH1, P16 during carcinogenesis and development of HCC. HBx also altered miRNA and lncRNA expression profiling in hepatocytes, such as miR-21, miR-101, miR-29 and UCA1 in hepatocarcinogenesis. These data are expected to help generate a precise network of epigenetic modifications that would facilitate deciphering the mechanisms underlying HBx-related HCC and substantially contribute to the translational applications of epigenetic regulation for clinical management of the disease.

About the speaker

Prof. Hong Fan is the Chairmen of Department of Genetics and Developmental Biology at Medical School of Southeast University, PI of the Key Laboratory of Developmental Genes and Human Diseases in Ministry of Education. She is vice president of the Institution of Jiangsu Genetics Association. She is member of several academic associations, including the Chinese Genetics Association, the Chinese Anti-cancer Association, the Jiangsu Medical Association, the Chinese Cell Biology Association. She is one of communication review experts of National Natural Fund Project, Ministry of Science and Technology, Ministry of Education, Science and Technology Projects and Award.

Her major research interests focus on genetic and epigenetic mechanism of carcinogenesis especially in hepatocellular carcinoma and gastric cancer. She is devoted to researching the contributions of DNA methyltransferases and non-coding RNA to digestive system neoplasms. Her work has been funded by the National Natural Science Foundation of China (NSFC) and Innovation Project of JiangSu Province. As a corresponding author, she published more than 30 original papers in peer-reviewed, SCI-cited journals including Oncogene, BMC Medicine, Scientific Report, etc.

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All are welcome !