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### **The HBx oncoprotein of hepatitis B virus promotes cell transformation by stimulating rDNA transcription and ribosome biogenesis**

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The pleiotropic HBx oncoprotein of hepatitis B virus is well known to promote the expression of several host proteins that are known to support the development and progression of hepatocellular carcinoma (HCC). Further, HBx engages multiple signalling and growth-promoting pathways to enhance ribosome biogenesis and cell proliferation. Interestingly, hepatic tumors show elevated levels of host Upstream Binding Factor (UBF) and nucleophosmin (NPM) that are essential for rDNA transcription and ribosome biogenesis. However, their role in cell transformation remains elusive. We investigated the oncogenic activity of UBF and NPM after co-expressing them with HBx in immortalized human hepatocytes (IHH) and human hepatoma Huh7 cells. We found that HBx stabilized the intracellular levels of NPM protein and translocated it into the nucleolus where it facilitated the recruitment of RNA polymerase I transcriptional machinery and enhanced rDNA transcription. Besides, HBx stimulated the expression of UBF gene by enhancing c-Myc occupancy on the UBF gene promoter. Enhanced UBF expression led to a marked increase in cell proliferation and transformation of IHH cells. Thus, our study provides some compelling evidences in support of HBx-mediated increase in NPM and UBF levels that abet oncogenic onslaught in hepatic cells by increasing rDNA transcription and ribosome biogenesis.

#### **Biography**

Vijay Kumar is currently a J C Bose Fellow at the the International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi. He completed his PhD from the All India Institute of Medical Sciences, New Delhi, India and Post-doctoral research at the Institute of Chemical Biology, Strasbourg, France. He has been a Principal Investigator and Head of the Virology Group at ICGEB. He has published over 100 papers in reputed journals and served as Editorial Board Member of many journals. He is also a fellow of three Indian Science Academies of India.

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