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Identification of miR-203 as a key target of CD44 signaling whose suppression enhances the stemness of human colorectal cancer cells from several established lines

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MicroRNAs (miRNAs) are non-coding RNAs with 21-25 nucleotides in length, which regulate gene expression post-transcriptionally by binding to the 3'-untranslated regions (3'UTRs) or the open reading frames (ORFs) of target mRNAs, leading to their degradation and/or translational arrest. Crucial roles of miRNAs in the malignancy of human cancers have been unraveled in recent years and the signatures of their expression profiles associated with tumor initiation, progression, and prognosis have also been identified continually. In this talk, the author will first show that activation of CD44, a well-recognized cancer stem cell (CSC) surface marker, by hyaluronan (HA) in human HCT-15 and HCT-116 colorectal carcinoma (CRC) cells stimulates the expression as well as nuclear translocation of Snail, which in turn suppresses the expression of miR-203, a stemness inhibitor, by binding directly to an E-box element in its promoter region. Downregulation of this miRNA in CRC cells indeed accounts for the increase in some of their SC properties. Author will also present data demonstrating that over-expression and disruption of the function of miR-203 in various human CRC lines diminishes and enhances their stemness, respectively. In the final session of this speech, the targets of miR-203 whose reduced expression is responsible for the elevations in both the populations and features of colorectal cancer stem cells (CRSCs) will be discussed.

Biography

Yeu Su received his PhD from University of Wisconsin-Madison and later moved to Johns Hopkins Oncology Center for his post-doctoral training. He then went back to Taiwan in 1993 and began his study on the molecular carcinogenesis of colorectal cancer (CRC). Elucidating the role of thymosin beat-4 in CRC has been his main work earlier but his recent research has focused on understanding the origin of CRC stem cells and identified novel agents capable of selectively eradicating them. Besides being the reviewer for various international journals, he now serves on the editorial board for the *World Journal of Biological Chemistry*.

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