Kuo-Wang Tsai, J Cancer Sci Ther 2017, 9:4 (Suppl)
http://dx.doi.org/10.4172/1948-5956-C1-100

Long non-coding RNA LOC441461 modulates colorectal cancer cell growth through inducing cell cycle arrest at G1 phases

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Colorectal cancer (CRC) is one of the most common cancers and cause of cancer-related death worldwide. Metastasis and drug resistance are major problems that lead to the treatment failure and are the causes of the lethality of colon cancer. The human genome encodes more than 10,000 potential long non-coding RNAs (lncRNAs) that have been clearly elucidated. Moreover, lncRNAs have recently emerged as critical molecules in the development, cell growth, apoptosis, and metastasis of CRC. In this study, we performed transcriptome profiles of human lncRNAs in primary tumor, its liver metastases, as well as the corresponding normal mucosa of 2 CRC patients by microarray approach (including 27958 protein-coding genes and 7419 lncRNAs). Using clustering analysis and real-time PCR, we identified several lncRNAs were dysregulated in human colorectal cancer. Among them, we found that the expression levels of LOC441461 were significantly increasing in CRC compared to corresponding adjacent normal mucosa. Furthermore, knockdown of LOC441461 expression could significantly suppress colon cancer cell growth, invasion ability and induce cell cycle arrest at G1 phase. These results implied that LOC441461 may play an oncogenic role on colorectal cancer cell growth and motility. Our findings revealed a new insight for lncRNAs regulation and provided an application for colon cancer therapy.

Biography

Kuo-Wang Tsai has completed his PhD from Graduate Institute of Life Sciences, National Defense Medical Center and Post-doctoral studies from Institute of Biomedical Sciences, Academic Sinica, Taipei, Taiwan ROC. Currently, he is a Research Fellow in Department of Medical Education and Research, Kaohsiung Veterans General Hospital. He has published more than 40 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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