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Malignant transformation of chronic colitis

Previous studies have shown that chronic colitis is strongly associated with colorectal cancer formation. However, the mechanisms of colitis development and its malignant transformation are not clear. Using a unique mouse model, we have demonstrated that the mice with targeted disruption of the intestinal mucin gene *Muc2* spontaneously develop chronic inflammation at colon and rectum at early age. In the aged mice, *Muc2*^{-/-} mice develop colonic and rectal adenocarcinoma accompanying severe inflammation. To determine the mechanisms, we conducted miRNA array on the colonic epithelial cells and identified differential expression of miRNAs. The targets of the miRNAs were characterized and their functions were investigated. More studies from the *Muc2*^{-/-} mice showed disorder of gut microbiota. The disorder of gut microbiota could result in genetic mutations, epigenetic alterations, and activation of oncogenic signaling, in colorectal epithelial cells, leading to colitis development, promoting malignant transformation and mediating colorectal cancer metastasis.

Biography

Wancai Yang is the Dean of the Institute of Precision Medicine and School of Basic Medical Sciences, Jining Medical University, China, and a Professor of Pathology, University of Illinois at Chicago, USA. He is also an Adjunct Professor of Biological Sciences, University of Texas, El Paso, USA. He obtained his MD degree and was trained as a Pathologist from China and received Postdoctoral training on Cancer Biology from Rockefeller University and Albert Einstein Cancer Center, US, and was promoted as Assistant Professor. In 2006, he moved to the Department of Pathology, UIC. He was serving grant reviewer for the National Institutes of Health (USA) and the National Nature Science Foundation of China. His research focuses on: the determination of mechanisms of gastrointestinal carcinogenesis, identification of biomarkers for cancer detection and patient selection for chemotherapy, implication of precision medicine in cancers. He has published more than 80 peer-reviewed articles and has brought important impact in clinical significance.

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