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Cervical cancer stem cells and stem cell-related transcriptional factors in cervical carcinogenesis

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It has been well-known that human papillomavirus (HPV) is a critical risk factor for cervical carcinogenesis. However, only a very few of HPV infected lesions can progress to cervical invasive cancer, and *in vitro* experimental study found that HPV could immortalize, but could not transform normal cervical basal cells. What is involved in transformation step in cervical carcinogenesis? This study is focusing on the stem cell transcriptional factors in cervical carcinogenesis. Our published work demonstrates that stem cell-related genes OCT4, SOX2, BMI1 and LGR5 promote the carcinogenesis of cervical cancer, while SOX9, UTF1 and KLF4 serve as tumor suppressors in cervical carcinomas. Surprisingly, NANOG, found abundantly in the stromal cells but not in cervical cancer cells, also enhances the progression of cervical cancer. Our preliminary studies have established two novel cell isolation systems using SOX2 (a nuclear marker) and ALDH1 (a cytoplasmic marker), respectively. These methods have been successfully used to isolate and identify the stem cells from both cervical cancer specimens and cell lines.

Biography

Peng-Sheng Zheng graduated from Xi'an Medical College and got his Bachelor's degree in Clinical Medicine (1980-85) and obtained a Master's degree in the Department of Hematology at Norman Bethune University of Medical Sciences (NBUMS) in Jilin, China (1985-88). Then he earned his double PhD degrees in Department of Obstetrics and Gynecology from Norman Bethune University of Medical Sciences (1990-1993) as well as from Saga Medical University in Japan (1994-97). From 1997 to 2005, he employed as a Post-doctoral Fellow to study the Molecular Virology of Papillomavirus in the Memorial University of Newfoundland in Canada and National Institutes of Health (NIH) in USA, and worked as a Research Associate in University of Toronto. At the end of 2005, he came back to his hometown, Xi'an, China, and worked as Principle Investigator and Clinical Professor in the Department of Reproductive Medicine and Gynecology. He a Principle Investigator and currently serves in Section of Cancer Stem Cell Research, Key Laboratory of Environment and Genes related to Diseases, Xi'an Jiaotong University of Medical School, and worked in the study about cervical cancer stem cells. At the same time, as a Director and Professor, and a Clinical Doctor, serves in Department of Reproductive Medicine in the First Affiliated Hospital of Xi'an Jiaotong University Medical School. He specialized in the diagnosis and treatment of reproductive and endocrinologic diseases, especially in recurrent miscarriage.

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