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Reduced expression of SOX7 in ovarian cancer: A novel tumor suppressor through the Wnt/β-catenin signaling pathway

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Products of the SOX gene family play important roles in the life process. One of the members, SOX7 is associated with the development of a variety of cancers as a tumor suppression factor but its relevance with ovarian cancer was unclear. In this study, we investigated the involvement of SOX7 in the progression and prognosis of epithelial ovarian cancer (EOC) and the involved mechanisms. Expression profiles in two independent microarray data sets were analyzed for SOX7 between malignant and normal tissues. The expression levels of SOX7 in EOC, borderline ovarian tumors and normal ovarian tissues were measured by immunohistochemistry. We also measured levels of COX2 and cyclin-D1 to examine their possible involvement in the same signal transduction pathway as SOX7. The expression of SOX7 was significantly reduced in ovarian cancer tissues compared with normal controls strongly indicating that SOX7 might be a negative regulator in the Wnt/β-catenin pathway in ovarian cancer. By immunohistochemistry staining, the protein expression of SOX7 showed a consistent trend with that of the gene expression microarray analysis. By contrast, the protein expression level of COX2 and cyclin-D1 increased as the tumor malignancy progressed suggesting that SOX7 may function through the Wnt/β-catenin signaling pathway as a tumor suppressor. In comparison between the protein expression levels of SOX7 with pathological features of the cancer, we found that SOX7 was down-regulated mainly in serous cystadenocarcinoma and advanced stages of the cancers. The expression of SOX7 correlates with tumor progression as a tumor suppressor, possibly through the Wnt/β-catenin signaling pathway in ovarian cancers suggesting that SOX7 may be a promising prognostic and therapeutic target.

Biography

Huidi Liu has received her Master's degree from Harbin Medical University (HMU), China with a major in Physiology. After her graduation in 2011, she joined the Genomic Research Center at HMU and worked on genomic research of ovarian cancer and natural anti-cancer drugs. Presently, she is a PhD Student of Professor Shu-Lin Liu in HMU and has published four papers. Besides research, she teaches a course on Bacterial Systematics. Recently, she has been appointed Project Manager for the Centre for Infection and Genomics, a joint project between HMU and the Faculty of Medicine at the University of Calgary.

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