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Snail-induced claudin-11 engenders collective migration and forms circulating tumor cell clusters to promote tumor progression

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Although epithelial-mesenchymal transition (EMT) has been considered as a pivotal mechanism for cancer dissemination, the ideal EMT phenotype, i.e., dispersion of cancer cell aggregates and individual cell invasion, is difficult to be detected in real-life cancer samples. In this study, we demonstrate that the EMT inducer Snail engenders collective migration through induction of a tight junctional protein, claudin-11. Phosphorylation of tyrosine 191 and tyrosine 192 of claudin-11 recruits and activates Src, which in turns activates p190RhoGAP to suppress RhoA activity at intercellular junctions. Claudin-11 is crucial for generating circulating tumor cell (CTC) clusters *in vivo* and is expressed in CTC clusters from head and neck cancer patients. Moreover, we found a positive correlation between claudin-11 and Snail in head and neck cancer tissues. Either claudin-11 or Snail was highly correlated with tumor progression and prognosis. This finding extends our understanding of EMT-induced migration modes in cancer cells, and delineates the mechanism responsible for the generation of CTC clusters in cancer patients.

Biography

Ching-Fei Li has completed her Master's degree from Yang-Ming University, and the Master's thesis focuses on demonstating the immun-supressing effect of several extracts of Chinese medicine on T cells and macrophages. After graduation, she served as a Research Assistant in Academia Sinica for 3 years, and was involved in the projects like development of a non-invasive DNA methylation-based assay system for the risk assessment of urothelial carcinoma. Now, she is a sixth year PhD graduate student, and her title of thesis is snail-induced claudin-11 engenders collective migration and forms circulating tumor cell clusters to promote tumor progression.

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