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The role of JAK/STAT signaling pathway in cell proliferation and anti-apoptosis in ESCC cells in vitro and in vivo

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Esophageal cancer is one of the most common malignant tumor, awarded the fourth deadliest cancer in China, which has been a serious threat to human health. Recently, accumulating evidence has demonstrated that JAK/STAT signaling transduction pathway plays an essential role in carcinogenesis, which is mainly involved in cell growth, survival, differentiation and inhibition of apoptosis, thus making it a good target for cancer chemotherapy. Although constitutive JAK/STAT activation has been reported in many human tumors, the effect of JAK/STAT signaling pathway in esophageal squamous cell carcinoma (ESCC) is still poorly understood. To explore the role of JAK/STAT signaling pathway in ESCC, the ESCC cell lines and SCID mice were used. First, We detected the status of JAK/STAT signaling pathway in several ESCC cell lines and used stattic- the inhibitor of stat3, to evaluated the role of this pathway in carcinogenesis of ESCC. In vitro studies revealed that stattic inhibited the JAK/STAT signaling pathway and suppressed the ESCC cells proliferation, promoted the ESCC cells apoptosis and increased the ESCC cells sensitivity to chemotherapeutic drugs. Under these conditions, we detected the therapeutic effect of stattic using an in vivo PDX model to further study the role of JAK/STAT signaling pathway in ESCC tissues. The results in vivo studies have shown that stattic could efficiently inhibit the expression of stat3, leading to stay proliferation and induction of apoptosis in vivo. This finding will provide theory bases for the opinion that JAK/STAT signaling pathway could be considered potential therapeutic target for ESCC and stattic might possess the value as protective agent in ESCC chemotherapy.

Biography

Fang Tian has completed her PhD at the age of 32 years from Zhengzhou University. She is the associate Professor, Master instructor, in Basic Medical College of Zhengzhou University, responsible for give pathophysiology course to medical college students and direct the research of Master Degree' students. She has published more than 15 papers and held several funding.

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