

## TGF- $\beta$ 1 induces epithelial-mesenchymal transition and its regulation on the expression of CD133 via PI3K/Akt signaling pathway in gastric cancer cell line

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**Objective:** To investigate the biological effect of TGF- $\beta$ 1 on the epithelial mesenchymal transition (EMT) KATO-III gastric cancer cell line and to focus on the relation of EMT with the expression of TICs marker CD133.

**Methods:** KATO-III cells were cultured with TGF- $\beta$ 1, the morphological change was observed under phase-contrast microscopy. The matrigel invasion assay was used to investigate the invasion ability of KATO-III cells. RT-PCR and Western Blot were used to detect the expression of Snail, E-cadherin, N-cadherin, Akt, p-Akt and CD133. MACS was used to separate CD133<sup>+</sup> and CD133<sup>-</sup> cells from KATO-III cells and the expression of EMT related factors between those positive and negative cells was analyzed.

**Results:** TGF- $\beta$ 1 induced morphological alterations from epithelial to mesenchymal cells; the invasion ability of KATO-III cells were greatly enhanced after treatment with TGF- $\beta$ 1, the expression of Snail and N-cadherin were increased while the expression of E-cadherin was decreased. In CD133<sup>+</sup> subset, the expressions of Snail and N-cadherin were higher than those in CD133<sup>-</sup> cells, while E-cadherin expression was lower than CD133<sup>-</sup> cells. TGF- $\beta$ 1 induced up regulation of p-Akt and CD133 while PI3K inhibitor LY294002 could reverse that process.

**Conclusions:** TGF- $\beta$ 1 can induce EMT in KATO-III cells, regulate up the expression of CD133 via PI3K/Akt pathway and enhance the invasion ability of KATO-III cells.

### Biography

Bo-jian Jiang has completed his M.D. at the age of 24 years from Shanghai Second Medical College and postdoctoral studies for master's Degree of Medical Science from Shanghai Second Medical University and for Ph.D. from Asahikawa Medical College, Japan. He is the vice director of Department of General Surgery. He has published more than 100 papers in reputed journals and serving as an editorial board member of repute.

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