ABSTRACT

Composition and density of the extracellular matrix (ECM) play critical roles in breast cancer progression. Periostin (POSTN) is an ECM protein correlated to poor outcomes in breast cancer. While POSTN is structurally similar to TGFBI, another ECM protein, their roles in cancer remain unclear. Here, the effects of TGFß on POSTN and TGFBI expressions in breast cancer were investigated. POSTN and TGFBI expressions in murine and human mammary cell series were assessed *in vitro*. While individual POSTN and TGFBI expressions in the human breast cell series were not significantly different between the cells tested, the ratio POSTN/TGFBI increased with the aggressiveness of the cell tested ($p<0.05$). In the mouse mammary cancer 67NR, 4T07 and 4T1 cells, POSTN tended to increase with the aggressiveness of the cell tested ($p<0.05$) whereas no change was observed in TGFBI secretion. Moreover, incubation with exogenous transforming growth factor ß (TGFß) significantly increased POSTN secretion by 67NR and 4T07 cells but not by 4T1 cells ($p<0.05$). Following TGFß treatment, the cell surface expression by MDA-MB-231 cells of E-cadherin and CD133 remained unchanged. Moreover, the effects of indirect inhibition of TGFß signaling using an antagonism to angiotensin II receptor losartan were investigated *in vitro*. Only high losartan concentrations led to increased cell death. Also, losartan blocked 4T1 cell proliferation promoted by angiotensin II. Together, these observations support the role of TGFß in POSTN and TGFBI secretion by breast cancer cells, and suggest the potential of POSTN/TGFBI ratio in breast cancer evaluation.