Expression of Trop2 in bladder cancer is modulated by miR125b: in vivo and in vitro analyses

Chiara Avellini¹, Caterina Licini², Raffaella Lazzarini¹, Antonio D. Procopio¹, Giovanni Muzzonigro³, Giovanni Tossetta², Roberta Mazzucchelli⁴, Rosaria Gesuita⁴, Mario Castellucci², Fabiola Olivieri³, Daniela Marzioni²

¹Department of Clinical and Molecular Sciences, Università Politecnica delle Marche, Ancona, Italy -
²Department of Experimental and Clinical Medicine, Università Politecnica delle Marche, Ancona, Italy -
³Department of Clinic and Specialistic Sciences, Università Politecnica delle Marche, Ancona, Italy -
⁴Department of Biomedical Sciences and Public Health, Università Politecnica delle Marche, Ancona, Italy

Human trophoblastic cell surface antigen 2 (Trop-2) is a 40-kDa transmembrane glycoprotein, first identified as a cell surface marker for human trophoblast cells (1). Elevated expression of Trop-2 has been shown in several types of epithelial cancers and correlated with tumour aggressive and poor prognosis (2-3). The first aim of this study was to evaluate the variation of the Trop-2 expression in normal urothelium and urothelial bladder cancer. The immunohistochemical results showed an increase of Trop-2 levels in bladder cancer tissues with the increase of the severity of the pathology. Recent data identified Trop-2 as a target for miR-125b suggesting a possible role of miR-125b in the modulation of Trop-2 protein expression (4). The second aim was to verify if Trop-2 could be a target for miR-125b in bladder cells and to evaluate the possible role of miR-125b in the modulation of Trop-2 protein expression in normal bladder as well as in urothelial bladder cancer. In vitro we showed a contribution of miR-125b in deregulation of Trop-2 protein expression in a bladder cell line and we found that the expression of miR-125b was inversely correlated with the expression of Trop-2 protein on a cohort of bladder cancer tissues. We concluded to investigate in a larger population the use of Trop-2 and/or miR-125b as potential diagnostic markers in urothelial bladder cancer.

References


Keywords

Bladder cancer; Trop2; miR125b.