ABSTRACT

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Title of diploma thesis: Detection of epithelial-mesenchymal transition (EMT) markers in cells *in vitro*

Epithelial-mesenchymal transition (EMT) is a process during which motile mesenchymal-like cells develop from non-motile parent epithelial cells. Physiologically, EMT plays important roles during embryonic development and wound healing. Loss of control over this mechanism can lead to fibrosis and cancer progression. Motile mesenchymal-like cells can pass through the basal lamina, get into the blood vessels and spread to distant tissues. Transition is regulated by EMT biomarkers. The biomarkers comprise wide spectrum of proteins, including cell surface proteins (E-cadherin, N-cadherin), cytoskeletal proteins (vimentin), microRNA (miR 200) and transcription factors (Snail, Twist). In this study, expression of EMT biomarkers was evaluated using RT-PCR and Western blotting. The ability to migrate was assessed using real-time analysis with the x-CELLigence system. Two known triggers of EMT, the StemXVivo™ EMT Inducing Media Supplement (IS) and TGF-β, were compared in human oral cancer cell lines DOK and H376. TGF-β has been shown as more effective, especially in 5 ng/ml concentration, in comparison with IS. More sensitive to the TGF-β treatment was the cancer cell line DOK.