

## Abstract

Barrett's oesophagus (BO) is a complicated condition associated with pathological and physiological changes in epithelial cells and function, which lead to transition to the oesophageal adenocarcinoma (OA). It has been known that Barrett's oesophagus evolves due to chronic gastro-oesophageal reflux disease. Although progression of Barrett's disease to the adenocarcinoma is still unclear, incidence of oesophageal cancer and mortality rate world widely make its study necessary. Several investigations have been conducted on the aetiology of oesophageal cancer, however the putative role of bacteria in development of oesophageal adenocarcinoma has not been addressed. This study investigated the role of a *Campylobacter concisus* isolate as a possible microbiological factor in the pathogenesis of oesophageal cancer. Research aims to determine the effects of the bacterium on the expression profiles of five intracellular survival factors and pro-inflammatory mediators in three Barrett's cell lines using quantitative real-time PCR. On the other hand, successful administration of probiotics in gastrointestinal diseases create next step of study to detect role of probiotics on inhibition of organism effect's on expression of selected biomarkers. Two different Barrett's oesophageal cell lines were selected to co-culture with *Bifidobacterium longum* and *Lactobacillus acidophilus*.

Obtained results demonstrated that *C. concisus* able to modulate expression of biomarkers in a time-dependent manner, suggesting that organism might promotes malignancy through the increasing expression of P53, TNF $\alpha$ , as well as reduction in IL-18, CDX1 and COX2 expression. Applied probiotics determined that not only beneficial microorganisms could inhibit expression of biomarkers, also therapeutical culture condition was more effective than prophylactic test.