Abstract

Transcriptional repression imparted by nuclear receptor co-repressor (N-CoR) plays an important role in the maturation of cells of myeloid lineage. Studies have shown that N-CoR protein acts as a deactivator for self-renewal genes which eventually suppresses the cellular growth potentials leading to normal maturation of monocytes. When the N-CoR protein undergoes misfolding it activates the self-renewal genes which activates cellular growth potentials leading to uncontrolled growth and transformation of monocytes. This study was conceived with the goal to screen the primary colon cancer cells in order to identify the putative misfolding of N-CoR protein and to link the N-CoR induced deregulation of transcription mechanism which leads to the uncontrolled growth of colorectal carcinoma cells. Identification of N-CoR from colorectal polyp and primary colorectal cancer tissues was done by ELISA and immunohistochemistry techniques using N-CoR antibody. Based on the analysis of N-CoR conformation in tissues derived from colorectal polyp and primary colorectal cancer, it has been identified that N-CoR protein is found to be misfolded in the colorectal cancer tissues. Identification of stem cell gene (FLT3) and misfolded N-CoR was done by Reverse transcriptase-PCR analysis. Through the analysis, stem cell gene (FLT3) was found to be de-repressed in colon cancer cells due to N-CoR misfolding. The research conducted has also provided some evidence that support the hypothesis that misfolded N-CoR might play a role in the metabolic reprogramming of colorectal cancer cells and in the autophagy of cancer. Activation of unfolded protein response (UPR) in colorectal cancer cells was analysed by identifying the

expression of XBP1 gene and GRP78 gene through Reverse transcriptase-PCR method. Based on the results obtained, it has also been inferred that misfolded N-CoR might play an important role in the activation of unfolded protein response (UPR).

Keywords: ***N-CoR, colon cancer, FLT3, UPR, transcriptional deregulation***