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MiRNA Regulation of CXCL12β during Inflammation

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Abstract : Background: Inflammation plays an important role in infectious and non-infectious diseases. MiRNA is also reported to play role in inflammation and associated cancers. Chemokine CXCL12 is also known to play role in inflammation and various cancers. CXCL12/CXCR4 chemokine axis was involved in pathogenesis of IBD specially UC. Supplementation of CXCL12 induces homing of dendritic cells to spleen and enhances control of plasmodium parasite in BALB/c mice. We looked at the regulation of CXCL12β by miRNA in UC colitis. Prolonged inflammation of colon in UC patient increases the risk of developing colorectal cancer. We looked at the expression differences of CXCl12β and its targeting miRNA in cancer susceptible area of colon of UC patients. Aim: Aim of this study was to find out the expression regulation of CXCL12β by miRNA in inflammation. Materials and Methods: Biopsy samples and blood samples were collected from UC patients and non-IBD controls. mRNA expression was analyzed using microarray and real-time PCR. CXCL12β targeting miRNA were looked by using online target prediction tools. Expression of CXCL12β in blood samples and cell line supernatant was analyzed using ELISA. miRNA target was validated using dual luciferase assay. Results and conclusion: We found miR-200a regulate the expression of CXCL12β in UC. Expression of CXCL12β was increased in cancer susceptible part of colon and expression of its targeting miRNA was decreased in the same part of colon. miR-200a regulate CXCL12β expression in inflammation and may be an important therapeutic target in inflammation associated cancer.

Keywords : inflammation, miRNA, regulation, CXCL12
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