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 CXCL12 β 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 CXCl12 β 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 CXCL12 β 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. CXCL12 β targeting miRNA were looked by using online target prediction tools. Expression of CXCL12 β 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 CXCL12 β in UC. Expression of CXCL12 β 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 CXCL12 β expression in inflammation and may be an important therapeutic target in inflammation associated cancer.

Keywords : inflammation, miRNA, regulation, CXCL12

Conference Title : ICI 2017 : International Conference on Inflammation

Conference Location : Amsterdam, Netherlands

Conference Dates : May 14-15, 2017

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