STAT3 as a Key Factor in Tumor Microenvironment and Cancer Stem Cell

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Background

Recent studies revealed that tumor-associated macrophages (TAMs) play a decisive role in the regulation of tumor progression by manipulating tumor oncogenesis, angiogenesis and immune functions within tumor microenvironments. Signal transducer and activator of transcription 3 (STAT3), which is a point of convergence for numerous oncogenic signalling pathways, is constitutively activated both in tumor cells and in immune cells in the tumor microenvironment. TAMs serve as the major components of niche microenvironments regulating cancer stem cell functions. Activation of the Stat3 in TAM caused to cancer stem cell-specific fashion trigger tumorigenesis and anticancer drug resistance in tumor. The main aim of this study is evaluation of *stat3* gene expression in tumor microenvironment macrophages.

Methods

In this study, murine macrophage J774 A.1 cell line was used as a typical mouse macrophage for evaluation of stat3 gene expression in mRNA level. Culture condition followed by DMEM supplemented with 10% fetal bovine serum. Total RNA was extracted and converted to cDNA. PCR was performed by stat3 primers and then gene expression was evaluated by gel electrophoresis. Beta-actin was used as an internal control.

Results

Gel electrophoresis data was shown stat3 expression in murine J774 A.1 macrophage cell line.

Conclusion

Previous studies have been shown the ablation of the Stat3 gene in Immune cells in the tumor microenvironment caused to cancer stem cell inactivation. As regards stat3 was expressed in J774 A.1 cell line thus it seems that this cell line can be used for knockdown studies in order to cancer stem cell inactivation.

Key words: Cancer Stem Cell, M2 Macrophages, STAT3.

Poster Presentation

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