SP1 Downregulates ADAMTS-8 mRNA Expression in Colorectal Cancer Model

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ADAMTS proteases are metalloproteinases that play important roles in the formation and remodeling of the ECM. The ADAMTS family, consisting of 19 members, is involved in many processes such as angiogenesis, migration, proliferation and cancer. ADAMTS-8 is an angiogenic member and is important in tumor progression and invasion. It is known to be suppressed in some common cancer types. ADAMTS-8 expression is reduced in colorectal cancer (CRC) cells and thought to be a potential tumor suppressor for CRC. SP1 is a zinc finger motif transcription factor that binds to GC rich sequences. Studies have shown that SP1 is expressed at high levels in human CRC tissues. This situation suggests that the genes regulated by SP1 may potentially contribute to the progression and metastasis of CRC.

In this study, a bioinformatic analysis of the promoter region of ADAMTS-8 was conducted, revealing the presence of numerous SP1 binding motifs. SP1 overexpression was then performed in SW480 cells to observe the effect of SP1 on the transcriptional regulation of ADAMTS-8 in SW480 cells. The effect of SP1 on the ADAMTS-8 mRNA expression was analyzed using the qRT-PCR method. The results showed that overexpression of SP1 decreased the ADAMTS-8 mRNA level. Determining these effects will shed light on the regulation mechanism of ADAMTS-8 with SP1 in colorectal cancer.

Keywords: ADAMTS-8, SP1 transcription factor, Colorectal cancer.

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