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# Pharmacy

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## ***Regulation of ATF5 Expression by MicroRNA***

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### **Abstract**

ATF5 is a widely expressed transcription factor that modulates survival, proliferation, and differentiation. It is found elevated in transformed C6 glioma and MCF7 breast cancer compared to non-transformed cells and is upregulated in cells under cellular stress. However, the regulation of ATF5 expression is not fully understood. We hypothesize that microRNA (miRNA) play a role in regulating the expression of ATF5 at the 3' UTR. MiRNAs are endogenous small non-coding RNAs 20-25 nucleotides in length that contribute to regulation of gene expression at the translational level. We used in silico modeling programs to identify and select miRNAs 129-5p, 433-3p, and 520b as candidates predicted to bind the 3' UTR of ATF5. We are investigating the potential regulation of ATF5 by these miRNAs via multiple experimental strategies. Preliminary data show that miRNA are bound to the 3' UTR of ATF5 and that miRNAs 129-5p, 433-3p, and 520b are involved in regulating ATF5 expression under stress conditions and at steady state. A better understanding of the regulation of ATF5 could have implications in a broad range of human malignancies.