An Analysis of Ectopic Expression of MicroRNAs Targeting the Androgen Receptor on the Viability of Prostate Cancer Cells

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Alterations in the expression of microRNAs have been noted in many cancers and diseases. However, microRNAs were just recently discovered in 1993. Since then there has been a crucial need to understand the molecular mechanisms behind microRNAs. This project focused on analyzing the viability of prostate cancer cells transfected with over expressed microRNAs. These microRNAs include miR-30e, miR-135b, miR-299, and miR-541. Since these specific microRNAs target the androgen receptor in prostate cancer cells they have a significant effect on development. The viability of prostate cancer cells with over expressed microRNAs were analyzed using MTS Assay. MTS Assay is a colorimetric technique for determining the number of viable cells. The effect of two different drugs, BMS-5 and DTX, that reduce tumor growth were tested. After these cells were seeded, transfected with their specific DNA plasmid, and treated with a drug, they were then analyzed using MTS Assay. The results showed that the cells over expressed with microRNAs and drug would help slow tumor growth, depicting a lower cell count on the spectrophotometer. This shows that microRNAs help slow down tumor growth. This study regarding an over expression of multiple microRNAs provides important insight regarding prostate cancer and can potentially be used to provide a therapeutic approach to cure cancer.