

For this project we studied the relationship between the translational regulatory protein 5MP, copy 5MP1, and oncogene cMYC. Previous studies have shown 5MP1 to be overproduced in colon cancers. 5MP has also been shown to prevent translation in non-AUG start codons thus contributing to accurate translation initiation. The exact link between 5MP expression and tumorigenesis is currently unknown. Understanding this relationship could lead to ways to reduce the expression of oncogene cMYC and help future cancer patients. We used a differential model cell, retinal pigment epithelium (RPE). The cMYC expressing line of the cells contained larger nuclei and higher rRNA synthesis indicating that there were many more ribosomes present. This is consistent with cMYC's role in cell proliferation. cMYC has been shown to bind to the 5MP1 promotor, thus for this research project we used immunoblotting and luciferase reporter assays to test if 5MP1 was increased, and non-AUG initiation decreased, in cMYC lines. While this research is still ongoing, through this project I learned many different laboratory techniques such as plasmid extraction, restriction enzyme digestion, ligation, purification, transfection, PCR, luciferase assay, midi prep, splitting cells, and dual glo.