

**TITLE: Mutation Of DNA Regulatory Sequences In Cancer Samples And Impact On Clinical Outcome**

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**RESEARCH PROJECT DESCRIPTION** (brief overview of background, hypothesis, methods, role of medical student, funding and relevant publications -- SHOULD NOT EXCEED ~ 250 WORDS)

Genetic mutations play an important role in tumorigenesis and cancer progression. Historically, much emphasis has been put on studying the effect of protein coding sequence mutations that change the amino acid sequence. However, recent development indicated that regulatory sequences controlling the expression and epigenetic status of genes play a critical role in defining cellular property. This project will test the hypothesis that important regulatory sequences, especially those controlling the expression of tumor suppressor genes, are subject to mutation during tumorigenesis and such mutation may contribute to cancer progression and affect prognosis. This project will be mostly in silico analysis of whole genome sequencing data of cancer samples and perform statistically analysis to identify potential links between regulatory sequence mutations and clinical outcome. Experience with computer programming (scripting) and statistic analysis will be essential.