Cancer Survival Rate Analysis: Cytoskeletal Protein Stop and Frame Shift (fs) Codons vs. Missense Codons

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Cancer is something we hear in our everyday lives, it takes friends and loved ones and there seems like there is no help for them, especially when the treatment does not work. Through this project, data was gathered to determine if there should be different cancer treatments for different types of cancer mutations. The different types of mutations inside specific cancer cells were compared. Specific genes were used to compare the mutations; the four genes used were Mucin 4, Mucin 16, Fat 4, and Collagen type XI alpha 1. Five cancers were selected to use in the experiment, the five cancers were Lung Adenocarcinoma, Breast Invasive Carcinoma, Skin cutaneous melanoma, Colorectal Adenocarcinoma, and Prostate Adenocarcinoma. All of this experiment was done on Cbioportal.org and Excel. By comparing the two different types of mutations inside a cancer cell using Cbioportal.org using graphs and p-values, it showed that the effects of stop and frameshift mutations are much worse than the effects of missense mutations on the cancers survival rate. Several factors cause these results. The main factor is that frameshift and stop mutations leave the cytoskeleton in worse condition than missense does. The experiment showed that in the Breast Invasive Carcinoma has a statistical difference in the different types of mutations, meaning that it supported my hypothesis. The other cancers neither proved nor disproved my hypothesis.

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