Progress Updates

SU2C Colorectal Cancer Dream Team:

"Targeting Genomic, Metabolic, and Immunological Vulnerabilities of Colorectal Cancer"

This Dream Team is focusing on three areas of research that have the potential to impact the treatment of all stages of colorectal cancer.

The first two areas of research examine the potential of immunotherapy and targeted therapy to revolutionize the treatment of colorectal cancer. The team will determine the mechanisms of resistance to immunotherapies and targeted therapies and devise new strategies to overcome resistance.

The third area of study evaluates strategies to target different colorectal cancer subtypes. Specifically, two major subgroups of colorectal cancer—those with a mutation in the KRAS/BRAF gene, and those with a mutation in the PIK3CA gene—are susceptible to high doses of vitamin C combined with depletion of a nutrient called glutamine.

In animal studies, drugs developed to target these vulnerabilities were able to slow down or cure colorectal cancers of the two subgroups. This team is evaluating whether these promising findings can be transposed to patients with similar genomic abnormalities.

The team has reported the following progress:

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- The Team found potential parameters that can be used to predict how effective a patient's immune system can be, in fighting cancer cells.
- The Team has developed a tool that can help them tell if Vitamin C is taken into tumor cells. This tool would be very helpful as they conduct the clinical trial with Vitamin C.
- The Team is conducting 5 clinical trials and is planning 9 clinical trials that tests different kinds of treatment strategies: chemotherapy, targeted therapy, and immunotherapy. In these trials, they are particularly paying attention to the mutations in the tumors of the patients that they treat so that they can determine which drugs can be more effective to treat different groups of patients depending on the kind of mutations that their cancer cells have.
- The Team has shown that circulating DNA in the blood can be used to identify the mutations that a patient's cancer tissue has. By using DNA in the blood, the response of a patient's tumor to treatment can be more easily monitored than having to get a tumor biopsy frequently.