



Team Progress Updates

SU2C Cancer Susceptibility Convergence Research Team: “Correlating Immunological Health to Cancer Susceptibility”



In analyzing samples from immunological studies, scientists have discovered indications that people with less robust immune responses can be more likely to develop and succumb to cancer. This finding offers intriguing possibilities to better understand the effect the immune system may have on the development and progression of cancers in the body.

The SU2C Cancer Susceptibility Convergence Research Team will use a unique longitudinal cohort that was started at Stanford University in 2007, largely focused on older individuals and the phenomenon of aging, in their research project. A large quantity of data relating to the immune system has been collected. The current studies will include this cohort group and multiple complementary cohorts to look for a signature or signatures of immune dysfunction that predispose individuals to cancer.

Collaborating with clinicians, pathologists, immunologists, and Microsoft researchers, the team will connect the cohort studies at Stanford with bioinformatics and machine learning technologies to understand the role of immune impairment in cancer.

The team reported the following progress:

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- Scoring patients for their inflammatory age (iAge) has allowed the team to search for potential links between age-related decline in immune function and increased susceptibility to cancer. Researchers have observed higher iAge levels in patients with lower CD8+ T cells and also see a broad immune response decline associated with iAge.
- Team members have also shown that iAge is correlated with multi-morbidity and that not every person's immune system ages at the same rate. Subclinical forms of immunodeficiency can make patients more susceptible to different forms of cancer.
- The team is collecting longitudinal data that will allow them to undertake retroactive analyses of samples should a patient develop cancer. This approach, it is hoped, will aid in the development of biomarkers and diagnostics for cancers.

