Team Progress Updates

SU2C–Lustgarten Foundation Pancreatic Cancer Interception Dream Team:

"Intercepting Pancreatic Cancer in High-Risk Cohorts"

Currently there is no suitable screening test for pancreatic cancer. The goal of the Dream Team is to actively block pancreatic cancer at its earliest stages in patients at high risk.

The team is testing 2,000 pancreatic cancer patients for genetic mutations and screening the immediate family members of mutation carriers for their own pancreatic cancer risk. Cancer-free relatives who carry a mutation will be invited to enter an active screening protocol, tied to computer-based "deep learning" imaging that can detect cancers too small to be seen by the human eye. A subset of high-risk individuals who are currently cancer-free but have precancerous lesions in their pancreas will be invited to participate in the first-ever clinical trial of a vaccine to prevent pancreatic cancer.

Finally, the team will develop a "blood test" for very early diagnosis of pancreatic cancer, to be applied to people at high risk, such as those with new-onset diabetes.

The team has reported the following progress:

December 2018

- The team's effort in this review period has focused on increasing the uptake of germline genetic testing in first- and second-degree relatives of patients diagnosed with pancreatic cancer via a clinical trial called GENetic Education Risk Assessment and Testing (GENERATE). The goal of the genetic testing in this study is to understand risk of developing pancreatic cancer in the future.
- The team has developed a website and videos for the study. The videos include an introductory module describing the study and a genetic education video.
- Dana-Farber Cancer Institute is now ready to enroll patients for GENERATE.
- The team has developed 3D cell culture models of the normal pancreas and pancreatic tumor tissue. They will use these cell culture models to study how the immune system can be activated to fight pancreatic cancer.
- The team is analyzing blood samples from patients that were collected between six months and seven years before a pancreatic cancer diagnosis. The samples will be used to try to identify circulating blood cell components that can be used for early cancer detection.

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June 2018

- The Genetic Education Risk Assessment and Testing (GENERATE) clinical trial aims to help individuals at risk of developing pancreatic cancer learn of available genetic testing by providing access to genetic counseling via Doxy.me or Color Genomics. The trial received IRB approval and will start enrollment in the fall of 2018.
- A new mouse model of pancreatic cancer has been developed. This mouse model can be used to study how the pancreatic tumor interacts with and evades clearance by the immune system.
- The team is making progress in developing a blood test that can be used to detect pancreatic cancer early.
- The team sequenced DNA from close to 300 patients with pancreatic cancer and found that nearly 10% of the patients had a mutation in one of 24 examined genes, such as BRCA1, BRCA2, ATM, and PALB2. This knowledge increases doctors' and scientists' ability to screen for individuals who are at higher risk for developing pancreatic cancer.