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DEGREGORIO FAMILY FOUNDATION
Research & Education for Stomach & Esophageal Cancer

$1 Million Awarded to Continue to Develop Genetically Engineered Stem Cell Products to Fight Gastroesophageal Cancer

NEW YORK, Feb. 14, 2025 –The DeGregorio Family Foundation with support from the Torrey Coast Foundation Gastro Esophageal Investigator Network Initiative (GEMINI) has awarded $450,000 to Saar Gill, MD, PhD, of the University of Pennsylvania, to complete his 2022 grant for $1 million. He is making great strides in his objective to improve the effectiveness of immunotherapy in gastroesophageal cancer by using the tools of genetic engineering. He and his team are modifying human blood-forming stem cells to produce highly specialized cancer-eating cells called Chimeric Antigen Receptor (CAR) macrophages. This means that they could be injected into solid tumors.

"This grant will allow us to continue our work on what I hope will become a transformational technological advance in cancer treatment," said Dr. Gill. "There are not many funding bodies that have the foresight and courage to invest in such out-of-the-box concepts, and I look forward to repaying the Foundation's trust in me."

"While Chimeric Antigen Receptor T (CAR-T) cells have received FDA approvals for hematologic malignancies, their track record in solid tumors is disappointing," Dr. Gill continued. "The tumor microenvironment (TME), an ecosystem of cancer cells and a supportive cast of immune cells whose original purpose has been taken over by the tumor, contains plentiful macrophages. The goal of our project is to develop genetically engineered macrophages as a Trojan Horse approach to the treatment of upper GI malignancies."

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>
> ***- Dr. Saar Gill***

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Macrophages are normally produced from the bone marrow as monocytes, which travel around the bloodstream and lodge at sites of infection, inflammation and cancer. There, monocytes mature to become macrophages. The normal roles of macrophages include 1) to detect, engulf and destroy harmful organisms and 2) to serve as the body's garbage disposal system by engulfing and breaking down old, faulty or dying cells.

This project brings together and improves upon two technological innovations that were made in Dr. Gill's lab in the last few years. They previously made CAR macrophages from blood monocytes and showed that they can be made to eat cancer cells in a targeted manner, but the resultant CAR macrophages have a limited lifespan. By implanting a CAR in stem cells that give rise to monocytes and subsequently macrophages, Dr. Gill is hoping to develop a lifelong supply of cancer-eating cells for the treatment of upper gastrointestinal and other malignances.

In 2020, gastric and esophageal cancers combined killed over 1.3 million people worldwide. Patients continue to face poor prognoses following gastric and esophageal cancer diagnoses due to their chemo-resistant behavior and ability to metastasize.

"Dr. Gill's work presents the possibility of great advancement in the treatment of and ability to personalize gastroesophageal cancer therapy," concluded Lynn DeGregorio, President and Founder of the DeGregorio Family Foundation.

The DeGregorio Family Foundation, founded in 2006 after a 10th member of the DeGregorio family died of stomach cancer, has raised more than $12 million to fund innovative research focused on curing gastric and esophageal cancers. It is the only public foundation funding research grants for both of these cancers.

The DeGregorio Family Foundation is the only public foundation funding research grants for both gastric and esophageal cancers—click here to donate and...

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