

THE LEGACY PROJECT

FAMILY *and* FRIENDS NEWSLETTER

July 2020

We hope that the generous donation your family has made to The Legacy Project has brought some measure of comfort, knowing that future generations of women will benefit from this gift.

— James Waisman, M.D.

Hope for the Future

The Legacy Project, a rapid tissue donation program, was born out of a vision and initiated by breast oncologist **James Waisman, M.D.**, and cancer scientist **Peter P. Lee, M.D.** “Treating metastatic breast cancer is incredibly difficult because cancer characteristics differ from site to site and change over time,” says Dr. Waisman. This means that while one tumor may be hormone positive, a second may be hormone negative, and the two tumors may not both respond to a chosen therapy. “These differences in tumor characteristics have posed longstanding challenges in making therapeutic decisions and improving outcomes.”

FIRST OF ITS KIND PILOT PROGRAM

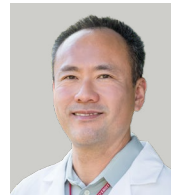
A few similar programs are scattered across the country, but The Legacy Project has marked the first of its kind in California. Although tissue donation programs contribute greatly to science, they are incredibly challenging to run; this limits the number of institutions capable of supporting such a program. Using donations from a group of grateful patients, Dr. Waisman set out to fund a small pilot study of 10 metastatic breast cancer patients. It was his hope that this study would not only benefit breast cancer patients, but that it would also show the institution how important The Legacy Project is for all cancer research.

GIVING BACK TO SCIENCE

Over the past year, nine metastatic breast cancer patients, and their families, made the selfless decision to give back to science, donating their tissues to advance research at City of Hope. From each of these wonderful women, we have gathered an unprecedented amount of data that we are confident is going to make a lasting impact in the field of metastatic breast cancer. While our initial goal was to complete the study with 10 participants, due to the current COVID-19 pandemic, we made the decision to conclude the study early so that we would not delay our scientists from moving forward with their analyses and finalizing their research findings. Our



James Waisman, M.D.
Physician



Peter P. Lee, M.D.
Scientist



Andrea Bild, Ph.D.
Scientist

The Legacy Project for Rapid Tissue Donation

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WHO CAN I CONTACT?

If you have any questions or wish to speak with someone about the program, you can contact The Legacy Project Director:

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Eliza Barragan, Ph.D.
Program Director





research efforts, led by **Peter P. Lee, M.D.**, the Billy and Audrey L. Wilder Professor in Cancer Immunotherapeutics, and **Andrea Bild, Ph.D.**, are underway and we are watching excitedly as new insights emerge from the data.

A SEARCH FOR BETTER OUTCOMES

As you may recall, we have been particularly interested in the immune system and how it functions in patients with metastatic breast cancer. Therapies targeting the immune system have had tremendous success against many kinds of cancer. Unfortunately, these therapies have not shown the same success in treating the majority of advanced breast cancers. Clinical trials have observed response rates of only 20% in triple-negative breast cancer patients and even lower rates of success in hormone positive patients. The good news is that our scientists believe that these rates can be dramatically improved. In order to do so, however, the first step is to better understand the relationships between cancer cells and immune cells, and how these relationships change over time, within different organs and between individual patients. The Legacy Project has aimed to answer these and other questions.

EARLY FINDINGS

Early findings from our scientists suggest that the number and kinds of immune cells in metastatic tumors are dictated by the organ, rather than the disease itself. For example, lung tumors consistently have greater numbers of immune cells compared to tumors collected from the liver. This is important because it suggests that the body's ability to fight cancer with the immune system depends on which organ the cancer occurs in. Going forward, it will be important to understand why certain organs show specific immune

patterns, so that we can gain clues on how to boost the immune system in organs which have low immune cell numbers. In doing so, we hope to develop therapeutic interventions that target immune deficiencies in metastatic breast cancer patients.

Through this research, our scientists are also starting to better understand how tumors are made up of different kinds of cancer cells that change as the tumors develop and spread to other organs in the body. After the cancer cells reach a new site, they change quite quickly and become something different. This may contribute to the challenges in treating metastatic cancer and suggests that we may need to use different treatments to target tumors at different stages of development. Early findings show, at the molecular level, how each tumor within a single patient is different. Clear patterns are emerging that differentiate tumors that are growing from those that are not. It will be important to understand what these differences are, and whether there's a vulnerability that can be exploited and developed into new therapies.

EXPANDING INTO THE FUTURE

As the first breast cancer "pilot" study nears completion, we are proud to announce that The Legacy Project will continue as an expanded program in partnership with physicians and scientists throughout the institution. In addition to breast cancer, over the next few years we will begin working with other metastatic cancers, including lung, colon, prostate and melanoma. We hope that you, too, will celebrate this news.

Because of the beautiful gift that you, your loved one and your family gave, together we are making a difference in cancer research. Together we will change lives.