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## For Immediate Release

# LJI scientists receive Curebound funding to advance cancer research

*Curebound grants may lead to new approaches to fight breast cancer, lung tumors and more*

LA JOLLA, CA — Scientists at La Jolla Institute for Immunology (LJI) are advancing new cancer research programs, thanks to more than $1.7 million in funding from the San Diego philanthropic organization Curebound. These new grants will support innovative cancer studies in four LJI laboratories—and fuel research collaborations across San Diego.

"We're very glad that Curebound decided to support our research," says LJI Assistant Professor Miguel Reina-Campos, Ph.D. "We're really looking forward to where these projects will lead."

**Harnessing virus-fighting immune cells to target breast cancer**

With Curebound's support, LJI Associate Professor Chris Benedict, Ph.D., has partnered with UC San Diego cancer biologist Tatiana Hurtado De Mendoza, Ph.D., to study how we might recruit virus-fighting immune cells to help kill tumors. Benedict is an expert on how immune cells target a kind of herpesvirus called cytomegalovirus (CMV).

CMV is infamous for camping out in the body for life without causing any symptoms. More than 50 percent of people unknowingly carry CMV, and their immune cells work hard to keep the virus in check. In fact, a whopping 10 percent of a CMV-infected person's T cells are dedicated to dealing with CMV.

Benedict and Hurtado De Mendoza will investigate whether they can inject CMV-specific molecules into a mouse model of orthotopic triple negative breast cancer. Their goal is to see if those molecules can prompt CMV-fighting T cells to kill the tumor cells.

Benedict hopes this approach may one day make it into clinical testing. "We've already studied this approach in a mouse model of pancreatic cancer, and we've found we can extend mouse lives significantly," says Benedict.

**Taking a closer look at head, neck, and adrenocortical cancers**

LJI Professor Anjana Rao, Ph.D., has received Curebound funds to study a potential new way to combat adrenocortical cancers, which affect the adrenal glands, and HPV-negative head and neck cancers.

Researchers have found that these cancers are driven by a DNA-binding protein known as SF-1 or NR5A1. Rao will collaborate with scientists at Orphagen Pharmaceuticals to better understand how a molecule that inhibits SF-1 may block tumor growth. The research team also hopes to shed light on how these cancers tend to evade the immune system—and how we might tweak immune responses to fight back.

**Spying on T cells**

Cancer biologist Reina-Campos has partnered with Salk Institute Assistant Professor Pallav Kosuri, Ph.D., to better understand what makes some T cells so effective in fighting cancer. Their goal is to capture T cells in action within tumors.

The team is using a technique called spatial transcriptomics, combined with machine learning and AI tools, to follow tumor-fighting T cells over time.

"Adding that spatial component will allow us to better understand how T cells infiltrate tumor walls and how they are retained within those walls," says Reina-Campos. "Then we can study what drives T cell behavior and success against tumor cells."

**Advancing immunotherapies against lung and cervical cancers**

Curebound funding will also support a collaboration between LJI William K. Bowes Distinguished Professor Pandurangan Vijayanand, MD, Ph.D., and Michael Jackson, Ph.D., Senior Vice President for Drug Discovery and Development in the Conrad Prebys Center for Chemical Genomics at Sanford Burhman Prebys. The researchers aim to improve immune responses against lung cancers, which have so far proven very difficult to beat using current immunotherapies.

This work builds on Vijayanand's discovery that certain T cells, tissue-resident memory T cells, play a key role in mounting a robust immune response against lung cancer tumors. This research led the Vijayanand Lab to uncover potential new targets for lung cancer immunotherapy.

Vijayanand and Jackson are now working to boost immune cell responses against these targets and help guide the development of a new class of immunotherapy drugs for patients with lung cancer.

Vijayanand has also received funding for new research that may advance precision therapy for advanced cervical cancer. This type of cervical cancer has spread beyond the cervix to affect other tissues and organs, such as the liver and lungs. For this project, Vijayanand is partnering with

Ramez N. Eskander, MD, of UC San Diego Health and Sunil Advani, MD, of the UC San Diego School of Medicine.

**Learn more:**

LJI Center for Cancer Immunotherapy

Local philanthropy Curebound grants $8.25M for cancer research

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