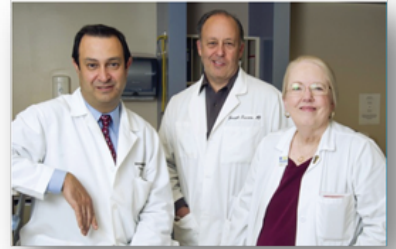


# TUSCANO RESEARCH FUND

## at UC Davis Comprehensive Cancer Center

UC Davis Comprehensive Cancer Center physicians are among the most respected in their fields. As faculty members of a major university medical center, they have been entrusted to train the next generation of cancer specialists. These physicians also conduct clinical research and collaborate closely with laboratory scientists, ensuring that new drugs and other treatments developed in the lab can move quickly to the clinic to benefit patients.



### Blood Cancer Facts

According to the Leukemia and Lymphoma Society (LLS), approximately every 3 minutes one person in the United States (US) is diagnosed with a blood cancer. New cases of leukemia, lymphoma and myeloma account for 10% of the estimated 1.7 million new cancer cases that were diagnosed in the US in 2020. Furthermore, over 1.4 million people in the US are living with, or are in remission from, blood cancers.

While progress is being made with treatments, an estimated 57,000 people die of these malignancies annually. Research is essential to finding more effective approaches to treating and curing these cancers. Much of this research is done at well-funded institutions with large staffs, and the results from these centers of research are certainly impressive! Locally in the northern California region, Dr. Joseph Tuscano leads a small research team that is performing ground-breaking, innovative, grass-roots work to uncover new protocols.

### Tuscano Research Fund

Dr. Joseph Tuscano is a member of the UC Davis Comprehensive Cancer Center oncology and adult stem cell transplant teams. Dr. Tuscano and his research team have a track record of hunting for novel approaches to treat lymphoma and leukemia, many of which can be used for other blood cancers such as multiple myeloma. The team is driven by an intense passion and unbridled commitment to developing less toxic and more effective treatments that utilize the patient's own immune system. In addition to his research, Dr. Tuscano sees and treats patients in the clinical setting, performs bone marrow/stem cell transplant procedures, and teaches at the UC Davis Medical School.

### Better Life Foundation Supports Tuscano Research Fund



The Better Life Foundation, a Sacramento-based non-profit organization, is a significant benefactor of the Tuscano Research Fund at UC Davis Comprehensive Cancer Center. The Better Life Foundation was formed in 2013 by Loel Heupel, President. Loel was diagnosed with non-Hodgkin's lymphoma in 2006, and under the guidance of Dr. Tuscano, had a successful bone marrow transplant in 2012. At that time, Loel committed to giving back to the people and the community that helped him beat cancer.

Since 2013, the non-profit has raised more than \$250,000 to directly fund the blood cancer research programs of Dr. Tuscano. The charity continues to seek ways to increase the awareness of cancers and to help improve the lives of those affected by blood cancers. By supporting the fundraising activities of the Better Life Foundation, for example through events such as Sunday on the Green, you can feel confident that your donation goes directly to research programs that can result in innovative treatments.



## Research Studies Led by Tuscano

Following are a few research programs under Dr. Tuscano's leadership and guidance.

**Non-toxic alternatives:** More than 10 years ago, Tuscano treated a lymphoma patient who was taking a natural product, made from fermented wheat germ extract, which had shown promising results in laboratory tests. Research and testing ensued. Fast forward to 2018: the team submitted and received a patent for a composition of 17 proteins from fermented wheat germ extract ("FWGE") that are active in reducing, inhibiting or preventing the proliferation of cancer cells and/or tumors. The team published a paper demonstrating that this treatment also works on lung and colon cancers, and might even prevent colon cancer (proven in lab studies of animals). This has all led to the receipt of a 4-year grant to continue this ground-breaking research.

**Tumor-specific cell-mediated inhibition:** The research lab environment obviously brings knowledge and continuous learning. A student researcher found a protein which has the ability to create a 'blanket' over cancer cells—making them invisible to, and allowing them to evade, the immune system. Using that knowledge, Tuscano's research team developed a bispecific monoclonal antibody, or a 2-arm protein. With this antibody, one protein binds to the immune system and uncovers the 'protective' shell to enable the cancer cell to be killed, and the other redirects it, meanwhile protecting other organs from toxicity that could be caused by the system. The team is creating the proteins in the lab; testing them in cultures; and as is frequently done, testing with animals to assess success rates.

**Pediatrics collaboration:** Leukemia is highly prevalent in children, and has much in common to lymphoma. Together with a Pediatric researcher, Dr. Tuscano is looking at treatment protocols for both cancers that can follow the message of "Go here and fix this." In many of these blood cancer cases, there are abnormal genes which need to be 'corrected'. Part of the challenge is getting the treatment technique to the abnormal cell only, without disruption of the normal genes. They are investigating antisense nucleotides (ASO), which attach to a protein (an antibody which serves as a vehicle) and direct the treatment to the cancer cell. Using Dr. Tuscano's expertise in 'delivery vehicles' and the pediatrician's expertise on ASOs, to date this team of collaborators has seen success in tissue cultures and animals.

**Partnering with the UC Davis Veterinary School:** Like humans, dogs are also susceptible to cancers such as lymphoma. In collaboration with a team at the UC Davis School of Veterinary Medicine, Tuscano's team tests treatments with the animals as a precursor to new treatment protocols for humans. Studying the dogs' immune systems also provides knowledge that can be used to help patients with cancer. Proving once again: a dog is man's best friend.

**Research projects such as these can lead to effective treatments for blood cancers, but can also lead to treatments for other cancers and other diseases. Funding these projects will have a large impact on the overall fight against cancer as they enable the team to accumulate valuable data to pursue longer-term research grants.**

Donations for the Tuscano Research Fund at UC Davis Comprehensive Cancer Center are accepted by the Better Life Foundation. Better Life Foundation is a 501(c)3 non-profit organization (#37-1820255) focused on improving the lives of blood cancer patients.

For more information:

Visit [betterlifefoundation-ca.org](http://betterlifefoundation-ca.org) to learn more about the organization

Visit [sundayonthegreen.com](http://sundayonthegreen.com) to learn more about our annual fundraising event

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