

The Campaign For UC San Diego

The Campaign for UC San Diego is our comprehensive fundraising effort — concluding in 2022 — to enhance student support, ensure student success, transform our campus, connect our community, and redefine medicine and health care on a global scale.

Eradicating Glioblastoma

The Furnari Lab

Glioblastoma is an aggressive, almost always lethal, form of cancer that forms in the brain. It targets victims of any age, resulting in excruciating headaches, nausea, vomiting and seizures. While its incidence is low among all cancer types, it makes up 16% of all primary brain tumors and is the most common brain malignancy.

The ultimate goal of the Furnari Lab is to understand glioblastomas at a molecular level and to eradicate them, as well as other types of brain cancer.

The Furnari Lab focuses on three key areas:

Tumor heterogeneity: A central issue that confounds successful treatment of glioblastoma is the heterogeneous nature of this aggressive tumor. There are multiple distinct populations within a single glioblastoma, making any lesion-specific or pathway-specific therapy less effective.

While considerable effort has been placed on understanding why glioblastoma is resistant to therapy, much less is known about the interactions between heterogeneous tumor cells that make it so hard to treat. We aim to understand these connections to develop more effective therapies.

Tumor vulnerabilities and genetic dependencies: If we want to know whether or not cancer has an Achilles' heel, then the answer may lie in a concept called synthetic lethality. This is the idea that a therapeutic opportunity arises when mutations in two genes result in cell death, but a mutation in either gene alone does not. Our lab has embarked on synthetically lethal approaches to cancer treatment by discovering tumor vulnerabilities and genetic targets.

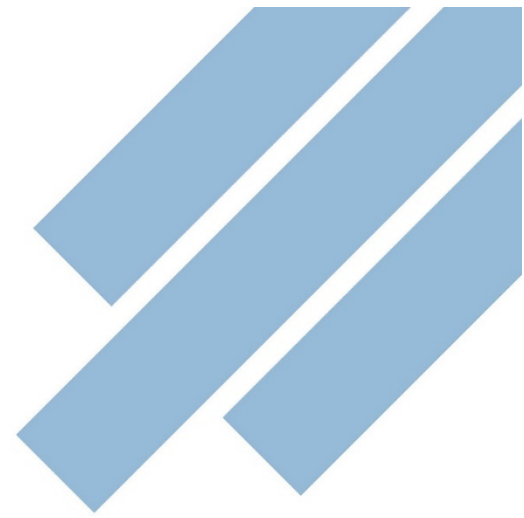
Brain tumor models: One factor that makes glioblastoma treatment difficult is that its inherent heterogeneity is promoted by different genetic drivers. A lack of models for these drivers has been one obstacle to research progress. To circumvent this limitation, our lab is generating models to recreate glioblastoma growth, using different genetic drivers, to better understand these tumors in both adults and children.





Lab Leadership

Frank Furnari, PhD, lab head and principal investigator, is a Professor of Medicine at UC San Diego and a cancer biologist focused on understanding mechanisms involved in promoting cancer in the brain and bringing these discoveries to the clinic. He earned his PhD in microbiology and immunology from the University of North Carolina-Chapel Hill.



Partner with Us

Your partnership will help advance our understanding of glioblastoma — a rare, aggressive tumor — and open the door to future treatment options that are effective, innovative and life-saving.

Your support will help the Furnari Lab advance education, as well as research and discovery.

Education

UC San Diego is recognized as one of the top-15 research universities worldwide, and is the only academic medical center in our region. We are regularly recognized as the best hospital in San Diego and are ranked among the top five in California.

As a result, the Furnari Lab is able to attract the best and brightest students at the graduate, doctoral and postdoctoral levels to conduct our important research. Your partnership supports an incubator for future health care leaders while reaffirming our commitment to training and mentoring in addition to helping launch the careers of researchers who will undoubtedly have a lasting impact in their field.

Research and Discovery

The research we do at the Furnari Lab will have a direct and actionable impact on patients with glioblastoma, as it informs new treatment approaches and therapeutic options. Your support enables us to study glioblastoma and develop a more comprehensive understanding of this aggressive tumor, ultimately empowering us to discover and innovate effective new treatments — offering hope to patients who are facing an almost-always lethal cancer.

Thank you for considering an investment in the future of glioblastoma research and treatment.

Help us continue the nontradition.

With your help, we can continue our tradition of excellence in discovery, interdisciplinary cooperation, and transformative research as we work to serve our local, national, and international communities through better health. Together with your philanthropic support of the **Campaign for UC San Diego**, we can make even greater things happen.

[Learn more at campaign.ucsd.edu.](https://campaign.ucsd.edu)

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