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UCSF-Pfizer partnership yields projects aimed at clinical trials

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An 11-month-old partnership between UCSF and Pfizer, Inc., aimed at rapidly moving new therapies into human clinical trials, has selected its first projects for funding and joint development. Teams from the University and Pfizer will work together on experimental therapies developed by the UCSF scientists with a goal of testing them in people with five hard-to-treat, often deadly conditions, including lung and prostate cancer.

Three to five additional projects from university researchers will be selected after a second round of proposals, due Nov. 4, are evaluated.

As part of the unique collaboration, Pfizer, the world's largest drug company, will not only provide funding for the selected researchers, but has set up its own laboratory space next to UCSF's Mission Bay campus. Scientists at the Pfizer lab, the Center for Therapeutic Innovation, will work directly with each of the UCSF teams.

"At UCSF, we are absolutely focused on finding new ways to turn the groundbreaking research of our scientists into therapies that benefit patients and the public," said Jeffrey Bluestone, PhD, UCSF's executive vice chancellor and provost. "Our work with Pfizer epitomizes our approach to building innovative, collaborative partnerships with industry."

The Pfizer and UCSF researchers can visit each other's labs, conduct experiments together and participate in joint team meetings, said

Stephanie Robertson, PhD, who oversees the collaboration for the UCSF Office of Innovation, Technologies & Alliances with colleague Tuhin Sinha, PhD, alliance manager of the ITA.

"The proximity is key," Robertson said. "People can literally walk across the street. That was a big reason for Pfizer locating right here."

As the cost of developing new drugs has skyrocketed -- reaching $1.8 billion per approved drug, according to some recent research -- drug companies have been searching for ways to lower the cost. Since they often spend years or months developing testing tools geared to the biology they're interested in, the UCSF-Pfizer collaboration offers a way to jump-start that process by linking with academic researchers who know the biology and have already developed the tools.

"We are truly excited to work in this partnership with leading experts from UCSF to understand more about the mechanisms that drive diseases with high unmet medical need," said Anthony Coyle, PhD, vice president and head of Pfizer's Global Centers for Therapeutic Innovation. "By understanding the mechanisms underlying inflammatory diseases, cardiovascular disease and oncology, we can design better molecules to treat the right patients."

Pfizer will have the right to commercialize the drugs and UCSF will earn milestone payments as the therapies advance through different stages of testing, as well as royalties from sales of approved therapies. This collaborative structure also provides the university the potential for a bigger return than it would normally receive when licensing out an early-stage technology.

"Best of all, it allows the scientists to be involved in turning research they've worked on for years into something that could actually be used to treat patients," Robertson said.

One of the joint teams is developing a cancer treatment aimed initially at lung tumors. Two UCSF scientists, Steven Rosen, PhD, professor and vice-chair of the department of anatomy, and Hassan Lemjabbar-Alaoui, PhD, assistant adjunct professor at the thoracic oncology program in the School of Medicine's department of surgery, have identified an enzyme that has been found at high levels in lung and other types of cancer. Early research has shown that using antibodies to target the enzyme in lung cancer cells normalized the cells so they were no longer cancerous. This occurred even in cells that were turned cancerous by being exposed to cigarette smoke.

About 221,000 people will be diagnosed with lung cancer this year and 157,000 will die, according to the American Cancer Society. By the time most people are diagnosed, their life expectancy is less than one year.

"New therapies are desperately needed," Rosen said. "That's why we're on a fast track."

The partnership enables the teams to combine their unique areas of expertise to push the pace of development, Rosen said. "That's the whole idea: merge our strengths and speed the process along, compared to what either party could do alone."

Rosen said he hopes his team will be able to start early human trials in as little as three or four years as they try to develop a new way of treating this most deadly of cancers.

A new approach to treating prostate cancer may be ready for human testing even sooner -- in as little as two-and-a-half years. The project has a head-start because a research team led by Bin Liu, PhD, an associate professor in the department of anesthesiology, has identified an antibody that can seek out and penetrate prostate cancer cells. The goal of the work with Pfizer will be to link the antibody with a potent anti-cancer

drug and create a new combination therapy that acts like a guided missile. The antibody will home in on the cancer cell, delivering the cancer drug directly to its target. This will allow the drug to strike where it's needed and minimize accumulation in other tissues where it might cause toxic side effects.

"Current treatments for men with recurrent or advanced prostate cancer almost always fail," said Liu. "Our antibody therapeutic, if successfully developed and tested in the clinic, could provide a new approach to treating this disease."

The five projects were selected from 32 submissions by a steering committee composed of eight scientists, half from Pfizer and half from UCSF. Committee members sat for two days as a jury, first reviewing preliminary outlines and later hearing full proposals on the projects judged most promising. The steering committee operated by consensus, having to fully agree on which projects to fund.

In addition to the lung and prostate cancer efforts, three other projects were selected:

- A team led by Shaun Coughlin, MD, PhD, director of UCSF's Cardiovascular Research Institute, will work on a treatment for a clotting disorder known as thrombosis.
- Kathy Giacomini, PhD, co-chair of the department of bioengineering and therapeutic sciences, and her colleagues will pursue a therapy for a common and often deadly form of liver disease known as non-alcoholic steatohepatitis (NASH).
- A team led by Hal Chapman, MD, chief of the pulmonary and critical care division, will focus on developing therapies for a devastating condition called pulmonary fibrosis that scars the lungs and impairs normal breathing.

Details on the proposal process and how to submit the initial 2-3 page preproposal can be found at officeofresearch.ucsf.edu/ITA/CTI, or email ita@ucsf.edu with questions.

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