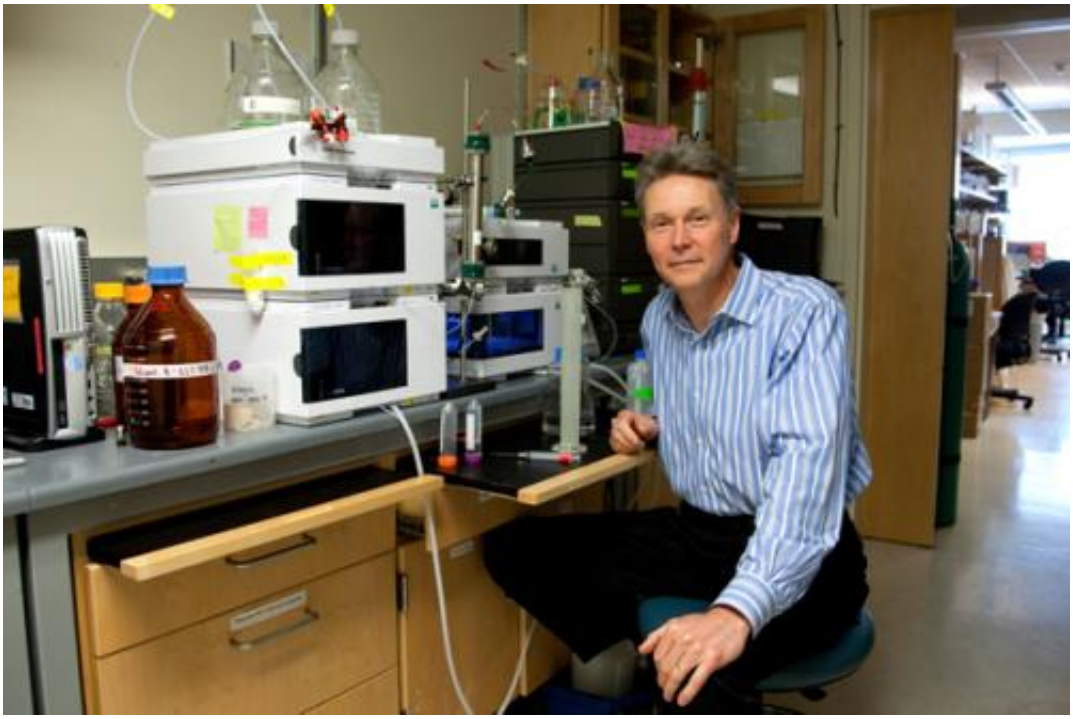
Medical Xpress

Research offers new hope for HIV/AIDS patients with cancer

August 22 2012, By Steve Tokar



Charles S. Craik, PhD. Photos by Cindy Chew

A proposed new treatment to help HIV/AIDS patients suffering from Kaposi's sarcoma, the most common form of cancer in people with HIV, is now one step closer to becoming a reality.

Charles S. Craik, PhD, a professor in the UCSF School of Pharmacy, has received new support to develop his latest research on the herpes

virus that causes Kaposi's sarcoma through a $100,000 T1 Translational Catalyst Award offered through UCSF's Clinical and Translational Science Institute (CTSI). Craik, who works in the Department of Pharmaceutical Chemistry, is known for leading the team that identified HIV protease inhibitors in the late 1980s.

An especially promising aspect of Craik's research is its potential to also lead to a new treatment for the cytomegalovirus (CMV), a related herpes virus that can lead to pneumonia and gastrointestinal, retinal and neurological diseases in infants and in transplant recipients and other immunocompromised individuals.

A successful new CMV treatment would be "huge," said Craik, who is also affiliated with the California Institute for Quantitative Biosciences (QB3) located at UCSF's Mission Bay campus. "Currently, there are very few treatments for CMV. If you don't respond to them or can't tolerate them, there's nothing else to offer you."

The immediate target of Craik's prospective medication is Kaposi's sarcoma herpes virus (KSHV) protease, an enzyme that cleaves proteins, Craik explains. Viruses, including HIV, use proteases to reproduce and to promote infection.

The T1 Catalyst Award is offered twice a year, and is designed to help move promising early-stage research through the lengthy and complex process of translating ideas into therapies to benefit patients.

CTSI's T1 Catalyst Award will allow Craik to develop molecules to block the KSVH protease and test them in the lab using a tissue culture approach. "If the new compound blocks the virus without killing the surrounding cells, it will have great potential for working in animal models," Craik said. "We're already making promising progress there."

Craik's project was chosen as the final winner by a panel of business and industry experts who reviewed proposals from nine finalists. Other winners included Tejal Desai, PhD, a professor in the School of Pharmacy; Ari Green, MD, an assistant professor in the School of Medicine; and Jay Stewart, MD, an associate professor in the School of Medicine.

Awards Process Benefits From Expert Advice

The T1 Catalyst Award process is different from other awards because of the support that finalists receive from industry experts, Craik said. "In the finalist stage, we were paired with two fantastic consultants who worked with us to improve the project and helped us address key issues related to clinical and product development that will increase the likelihood of our work ultimately reaching patients."

Craik's consultants were Nancy Shulman, MD, a clinical infectious disease specialist at Genentech; and Brian Metcalf, PhD, a medicinal chemist and chief scientific officer of Global Blood Therapeutics. "Both helped me refine my ideas about the unmet need we were addressing, and especially what was truly novel about our approach," Craik said.

Another award finalist, Peder Larson, PhD, assistant professor of radiology and biomedical imaging at UCSF's School of Medicine, noted that he benefited from the award process even though his project was not selected as a winner.

Larson's proposal involved a new contrast agent that would potentially indicate in a Magnetic Resonance Imaging (MRI) scan whether a prostate cancer tumor is actively growing or not. "The agent would tell you on a functional level what the tumor tissues are doing — giving you an indication of the nature of the tumor and how aggressive it is," he said.

He worked to refine his proposal with the advice of project consultants June Lee, MD, FACCP, director of the Early Translational Research program at CTSI; Greg Naeve, PhD, head of strategic research partnerships at Pfizer; and Teresa Burgess, PhD, adjunct associate professor of Molecular, Cellular and Developmental Biology at UC Santa Barbara. With their help, Larson realized that he had not been asking the tough questions about the details of where the technique would be applied clinically: At what stage of prostate cancer treatment would someone get this procedure? How would it translate into a clinically and commercially viable new technique?

Larson admits that as an academic, he found the experience somewhat outside of his comfort zone. Ultimately, he said, because he is trying to develop translational technologies, he now understands the importance of working with people in industry who know how that process works and with clinical partners who will be the end users of new technology.Larson's proposal involved a new contrast agent that would potentially indicate in a Magnetic Resonance Imaging (MRI) scan whether a prostate cancer tumor is actively growing or not. "The agent would tell you on a functional level what the tumor tissues are doing — giving you an indication of the nature of the tumor and how aggressive it is," he said.

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Provided by University of California, San Francisco