The Valley of Death: that’s what the co-directors of the new Yale Cancer Therapeutic Accelerator Program (Yale CTAP) call the place where promising lab compounds perish on the rigorous journey towards becoming a new cancer drug. In fact, most patents of discoveries expire before they even reach the valley’s outskirts, according to Craig Crews, PhD, Lewis B. Cullman Professor of Molecular, Cellular and Developmental Biology, and Director of the Yale Center for Molecular Discovery, and his CTAP co-director Mark Lemmon, PhD, David A. Sackler Professor of Pharmacology and co-director of the Cancer Biology Institute.

“Despite all the efforts at translational medicine,” said Dr. Crews, “the harsh reality is that it takes a lot to develop others to ask what it would take to make something attractive enough to put $5 million or $15 million into a new startup located here,” said Dr. Crews. “So we really aren’t doing drug discovery or drug development, but would generate the companies to do that.”

Another part of the program’s mission is to teach YCC members how to be more entrepreneurial. Once the external advisory committee approves a project, CTAP will work with the initiating faculty member to put together a business plan and coach him/her on how to pitch the discovery to venture capitalists.

Because the program is so new, the search for funding has just begun. Dr. Crews and Dr. Lemmon intend to tap philanthropic and commercial sources that prefer to invest in projects that have moved beyond basic science toward practical application. A strong selling point, said the co-directors, is that CTAP can draw on new state-of-the-art research facilities and Institutes on Yale’s West Campus as well as several departments.

“It takes a village to move from a germ of an idea to the exploitation of the idea.”

ACCELERATING development of NEW DRUGS

hug barrier to taking their discoveries beyond the lab.Expense and lack of access to the right experience is what most potential cancer care discoveries. CTAP would provide stepping stones across the Valley of Death.

“The idea for CTAP came from Peter G. Schulam, MD, PhD, Director of Yale Cancer Center and Physician-in-Chief of Smowle Cancer Hospital at Yale-New Haven (Interim). The program is modeled on a similar one started by Dr. Crews called PITCH (Program in Innovative Therapeutics for Connecticut’s Health), which is also aimed at developing new drugs. PITCH received a $7.5 million, three-year grant from the state of Connecticut to select and fund projects from Yale and the University of Connecticut, with the goal of developing promising discoveries to the point where they can be pitched to venture capitalists.

CTAP will adopt this concept, but with a focus on generating new cancer drugs and accelerating their development in much the same way as biotech startups.

"By coalescing ideas, capital, and talent," said Dr. Crews, “one can drive the whole drug discovery process in a much faster way than the pharmaceutical industry has.” CTAP will bring together programs across multiple schools and faculties at Yale to leverage their unique strengths in this process, allowing Cancer Center members to work alongside faculty who can complement their research goals from throughout the University.

It would work like this: let’s say a Cancer Center member makes an intriguing discovery and wants to develop it into a drug that could be tested in Phase I trials at Yale, but doesn’t know how to go about it. CTAP and the Yale Center for Molecular Discovery would engage a team of professional drug developers to screen drug candidates for useful compounds. If any of these appeared promising, medicinal chemists and others would design, synthesize, and tweak the compounds to make them more drug-like. CTAP would then help marshal the efforts of labs in the Cancer Biology Institute and elsewhere to generate data packages evaluating the potential of the compounds — facilitating the pipeline from idea to therapeutics approach.

At that point, the compounds would be evaluated by an external advisory board, comprised of representatives from biotech and big pharma, to determine which have therapeutic potential and should advance to the next level: pitching to philanthropic and venture capital sources.

“We want to work with the venture capitalists and others to ask what it would take to make something attractive enough to put $5 million or $15 million into a new startup located here,” said Dr. Crews. “So we really aren’t doing drug discovery or drug development, but would generate the companies to do that.”