



WHAT IS TRANSLATIONAL RESEARCH

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At the heart of SU2C’s funding model – which you can read in its entirety [here](#)– is an emphasis on translational research. The majority of funds raised by the initiative will go to multidisciplinary “dream teams” collaborating on this type of research. But what exactly is it, and why is it so important?

“Translational research can be pictured in the following way,” explains Nobel prizewinner Phillip Sharp, PhD, in an [interview with SU2C](#) “I have a scientific insight. I develop a drug for that scientific insight, or a new therapeutic approach . . . You have to find the cancer patient who would respond to this drug, and you have to deliver it to that cancer patient in a compassionate and reasonable way to see if you can get maximal response.”

The beauty of this approach is that it often results in getting effective treatments to patients as quickly as possible. It means focusing on the clinic in order to drive what happens in the lab, and vice versa: scientists look at diseases on a molecular level and develop tools for physicians to try in clinical trials, while clinicians make observations about the disease in humans that drive the scientists’ efforts.

Makes sense, right? Then why is so much of the current research on cancer restricted to the lab bench? This traditional approach is responsible for many of the advances in scientific understanding that make translational research possible. But in order to get effective therapies to patients quickly, there must be more support for the next step of the process – the step wherein basic science is translated into lifesaving treatment.

“From the 1970s until the early 1990s, the mindset of basic cancer researchers was that cancer is so complex a process that a real solution cannot be found in our lifetimes, and that basic cancer research must remain aloof from the clinic,” said John Glaspy, MD, Director of the Jonsson Comprehensive Care Center’s Clinical Research Unit at UCLA. “Pursue pure, rigorous and non-goal-encumbered science to advance the understanding for some future generation that might find practical application feasible. This became an ingrained mindset. Success in research meant ‘protection’ from clinical concerns.”

Since the tide began to turn in the 90s, there’s been plenty of evidence of the power of

translational research. The development of breast cancer wonder drug trastuzumab (sold as Herceptin) is a famous example – the clinicians involved [struggled for years](#) to get funding for their research on the HER-2 gene, but today Herceptin, which inhibits the growth of cancerous cells, is one of the greatest success stories in cancer drug history.

“Had we had to depend on federal funding to do this, we'd never have been able to get it done,” said Dennis Slamon, MD, PhD, one of the creators of Herceptin and the director of the Woman’s Cancer Research Center at UCLA. “The process by which grants are submitted, reviewed, approved and funded is incredibly long, and it reduces ideas to lowest common denominator approaches. Approaches that are innovative frequently don't get funded.”

Other drugs that have emerged from translational research include Gleevec, which is used on chronic myelogenous leukemia and gastrointestinal stromal tumors; Avastin, for metastatic colon cancer and breast cancer; Tarceva, which treats non-small cell lung cancer, pancreatic cancer and more; Iressa, which is used to treat locally advanced or metastatic non-small cell lung cancer; and Erbitux, which treats metastatic colorectal cancer and head and neck cancer. Many of these drugs are currently being evaluated for use in other types of cancer as well.

“It was actually the discovery of Herceptin that shook the outmoded paradigm and started a rebirth of interest in ‘doing both,’ doing research and treating patients,” said Glaspy. “Given how stirring this story is, what is incomprehensible to me is that there is still a prejudice in basic cancer science against practical applications. It’s as though it’s 1943 and we’ve become so infatuated with the shiny advanced weapons we are developing that we have forgotten why we started developing them in the first place. Although I believe we can make very important headway in the clinic with the knowledge and technology available, we can't take Berlin with them.”

The development of the above targeted therapies – all FDA-approved in the past decade – represents a sea change in the way we treat certain types of cancer. But there’s still a lot of work to be done. Only in recent years has the [National Institutes of Health](#) (NIH) come to recognize the power of translational research. The [NIH Clinical and Translational Science Awards Consortium](#) was launched in October 2006, funding just 12 centers nationwide. In 2007 the program was expanded to 24 centers, with a total of \$574 million in funding awarded. Sound like a lot? Compare that to the National Cancer Institute’s annual budget of \$5 billion – and the NIH’s total budget of \$555 billion. Of the money our government annually sets aside for cancer research, only 10% goes to translational projects.

And it’s not just the government getting in the way. Valuable funding can also come directly from the source – the pharmaceutical companies hoping to win big by gambling on the development of lifesaving drugs. But they often leave translational researchers in the lurch by abandoning exciting new strategies if they don’t show immediate profit potential. Again and again, the type of cancer research with the most promise gets short shrift. That’s why SU2C is dedicated to funding collaborative, translational research with

the potential to yield real results within a short time frame.

“Stand Up To Cancer is founded on the belief that there is an opportunity for an additional funding mechanism focused on using the knowledge and technology already in hand -- or just around the corner -- to address the cancer problem, and utilizing approaches to funding that circumvent some of the shortcomings in current research support mechanisms,” said Glaspy.

“Stated another way, SU2C believes that there are human beings who will benefit immensely if we are successful.”

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