

THE NEXT GENERATION

C-Path researchers crack diseases through math, info sharing

By Nicholas Smith
Inside Tucson Business

Klaus Romero

Mention clinical pharmacology to someone and they'll probably get an image of lab coats and test tubes, but that's not quite Klaus Romero's job description.

His role as a clinical pharmacologist for the Critical Path Institute revolves more around math equations and trend lines.

"The idea is that those models should have practical applications for the drug development process," he said.

Romero begins by taking all the data he can find on diseases like polycystic renal disease, which can lead to kidney failure, to find a mathematical model that represents the common points of the disease. These equations can be used to determine which patients have a good chance of benefitting from which drugs.

"Right now it takes longer and it costs more to develop a single drug," Romero said.

His work fits in with C-Path's goal of reducing the amount of time it takes for a drug to hit the market from 10 to 15 years to about five.

By studying the areas drugs can be effective in, developing winning pharmaceuticals will become more cost efficient.

Romero has authored two books on drug toxicology, which are used in medical schools in his native Columbia.

"The other bulk of my work relates to the Arizona Center for Education and Research on Therapeutics," Romero said. "Basically we do drug safety surveillance."

AzCERT, as it is otherwise known, keeps a database of drugs that have been linked to cardiac arrhythmia, a condition of increased electrical activity in the heart that can lead to a heart attack. The center essentially curates all papers, cases and information it can find on the arrhythmia, something that Romero said gets 40,000 hits each month from patients and professionals.

As for changes he expects to see in the Food and Drug Administration over the next few years: "I see them applying more and more models and simulation."

Elizabeth Gribble Walker

"I've been calling my job like a professional nagger," said Elizabeth Gribble Walker.

As assistant director for C-Path's Predictive Safety Testing Consortium, Walker is in charge of overseeing work groups across more than a dozen corporations that share a pool of data that can bring everyone on the same page.

Walker, who joined C-Path in January 2008, sees several areas of improvement in order to get drugs to the market faster.

"The lack of the ability to work with the FDA is a problem area," she said, adding that sometimes companies have ways of testing drugs that have not yet been approved by the regulatory agency.

Toxicology is Walker's primary field of expertise. In drug development, the area is essential to understanding the adverse effects some drugs can have when consumed at certain levels.


She deals with establishing biomarkers, which indicate biological conditions. Another problem she sees in the field of bioscience is only the positive results get published, leaving a

wealth of data on less successful efforts that never see the light of day. By getting different companies to share a set of common information, she hopes that Company A will not waste time researching something that Company B already knows.

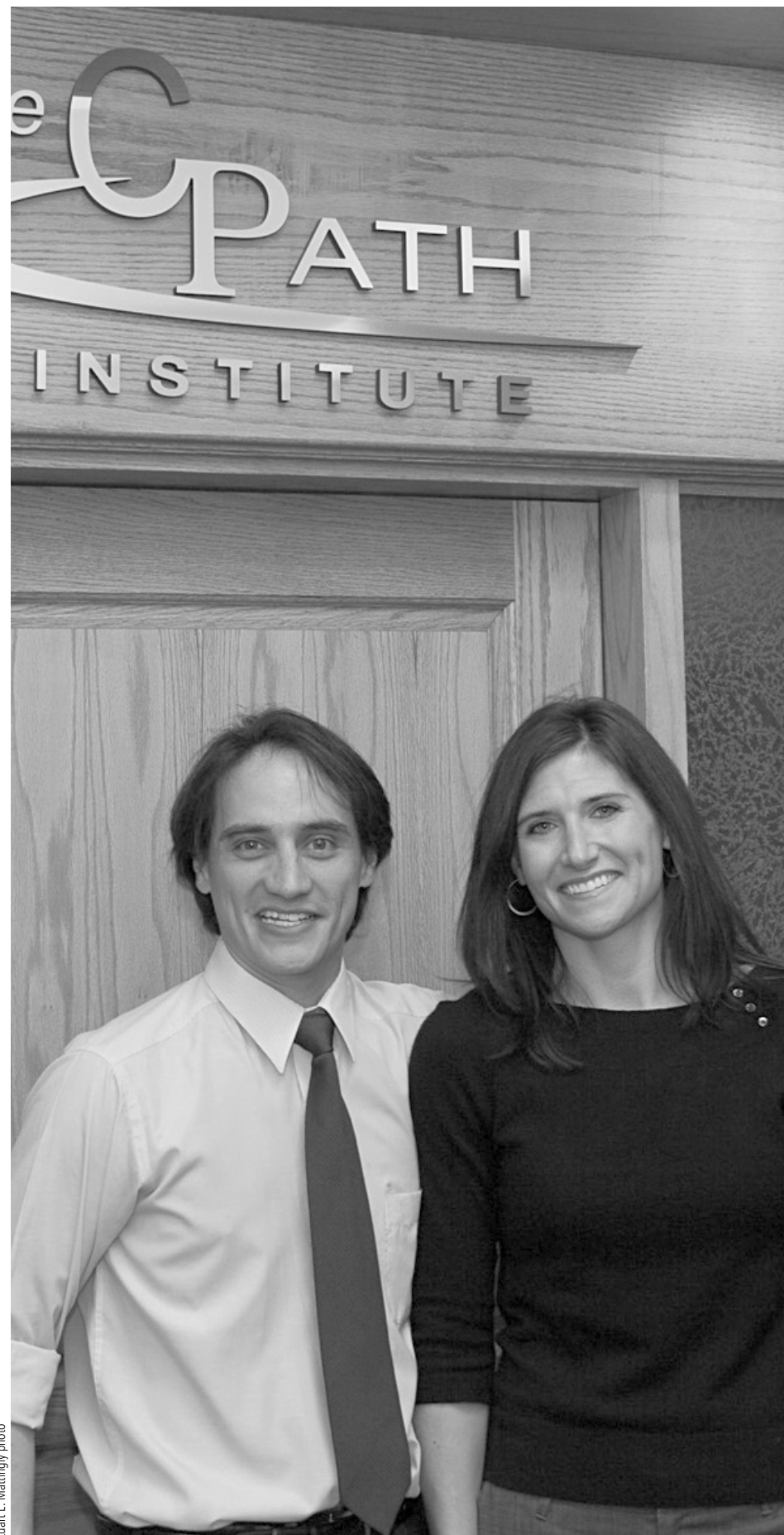
"The concept of how a drug is affecting diseases is definitely old news by the time it hits the market," she said.

The problem is analogous to the advances in computer technology. If stores only sold laptops that were 10 to 15 years old, it's likely that we wouldn't have the iPods or Facebook pages that we're used to today.

The consortium's efforts are paying off. In May of last year, the FDA and the European Medicines Agency a number of biomarkers that related to a certain protein that signaled kidney injury in laboratory rats.

 If there is a local researcher under the age of 35 you think should be featured in a future *The Next Generation*, contact Nicholas Smith at nsmith@azbiz.com or (520) 295-4238.

Editor's note: This week, Inside Tucson Business debuts a new monthly feature profiles the work of young scientists. The idea is to showcase the work and projects of budding scientists, engineers, doctors and researchers. This week's feature looks at two researchers from the Critical Path Institute, C-Path, the nonprofit institute focusing on shortening the amount of time it takes for pharmaceuticals to reach the market.



Stuart L. Mattingly photo

C-Path's Dr. Klaus Romero, Clinical Pharmacologist and Dr. Elizabeth Walker, Assistant Director of PSTC.