

# KGI's 4th Annual Research Symposium Highlights

## TB Diagnostics



Presenters at KGI's 4<sup>th</sup> Annual Research Symposium included (left to right): Angelika Niemz (KGI), Karen Dobos (Colorado State University), Jeff Schorey (University of Notre Dame), David Persing (Cepheid); Back row: Paul Rhodes (Metabolomx), Urs Ochsner (SomaLogic), David Boyle (PATH), Timothy Rodwell (UC San Diego), Luke Davis (UC San Francisco), and Antonino Catanzaro (UC San Diego) Not pictured: Gerard Cangelosi (University of Washington)

**K**GI's 4th Annual Research Symposium brought leaders from industry and academia together in September to discuss promising tuberculosis (TB) diagnostics and the need for rapid, accurate disease detection.

"TB Diagnosis: From Basic Science to Implementation" spurred lively discussion among students and presenters. It also gave students the opportunity to discuss real-life application of the lessons learned in their courses.

"We received a lot of positive feedback from participants and presenters," says Dr. Angelika Niemz, director of research and the Arnold and Mabel Beckman Professor at KGI. "It wasn't a big conference with thousands of attendees and 50 parallel sessions. Rather, it was a small, focused event where you could really dig deep into the topics."

Students chatted with presenters and

gained valuable connections with industry leaders, including some from companies that have hired KGI alumni and interns.

Each year, more than a million people die of TB—an infectious bacterial disease—even though the disease can be cured through appropriate antibiotic treatment. The problem is that nearly a third of new cases go undetected because of the lack of quick, reliable testing methods. Once detected, TB must be further identified as a regular or resistant strain to ensure that patients receive the correct medications.

"If you don't treat the person with the right drugs, right away, they stay infectious and spread the bug to other people. They also stay sicker longer or may even die," says physician Timothy Rodwell, assistant professor at University of California, San Diego and the symposium's Phillips lecturer. "What brought this to the world's attention was a situation

In August, a public-private team led by Dr. Niemz and researchers at KGI was awarded just over \$600,000 by the National Institutes of Health (NIH) for the first year of a four-year project to further develop its point-of-care nucleic acid testing platform for tuberculosis diagnosis.

in South Africa where several miners had HIV and drug-resistant TB. By the time we diagnosed that they had drug-resistant TB, most of them were dead."

Current diagnostic tests for active TB either have low sensitivity or take up to eight weeks to get results. The new diagnostics presented at the symposium could drop that window to a few hours.

A prototype presented by Dr. Niemz could potentially provide TB results within 1.5 hours. Designed for use in clinics in low-resource, high-burden countries, the device automates and integrates the processes involved in nucleic acid amplification testing to detect TB.

Funded by the National Institutes of Health and developed by the Niemz lab at KGI in partnership with companies such as Claremont BioSolutions, the project is an example of what academia and industry can accomplish together.

"Collaboration with academia can help industry develop and bring products to market in many ways," says Urs Ochsner, head of infectious disease research at SomaLogic, Inc., who presented on the company's SOMAscan system. "For example, basic science done in academia provides a deep understanding of a disease, and academia's established disease models and bioassays are great resources to test diagnostic or therapeutic candidates."

KGI's annual research symposia provide a forum for KGI faculty and students to interact with outside experts and for those experts to learn more about the work being done at KGI. Last year's conference focused on therapies for Huntington's disease, an inherited brain disorder that results in progressive loss of mental faculties and physical control.