Big Speakers, Tiny Science at the APSA South Regional Meeting

by **Bethany Baker**, MS on behalf of the UTMB Institute for Translational Sciences | **13 February 2017**

Have you ever wondered how a pregnant woman who develops cancer can safely be treated? This is one question posed by a participant who attended the South Regional American Physician Scientists Association (APSA) conference on Saturday, January 28th. The meeting, which was co-sponsored by UTMB's Institute for Translational Sciences (ITS), brought together nearly 70 biomedical participants ranging from high school students to postdoctoral scientists and physician scientists to world-renowned professors.

The meeting was held on the campus of the University of Texas Medical Branch (UTMB) at Galveston where participants engaged in activities including breakout sessions with ITS faculty members and UTMB professors of varying backgrounds. A highlight of the day was hearing two keynote speakers—UTMB professors Michael Laposata, MD, PhD and Joan Nichols, PhD—give talks about the big advancements in medicine and clinical science, with Dr. Laposata explaining the immense benefits for patients derived from more collaborative communication between medical doctors of different specialties and Dr. Nichols demonstrating the incredible advances being made in laboratory-generated whole lungs for transplantation. Additionally, scientists presented posters and gave oral presentations about their research projects.

One initiative within ITS's multi-faceted mission is facilitating translational research as a discipline. Judges at the meeting determined which poster they felt most closely represented translational science, the merging of science and medicine. The winner of the first ever ITS Translational Award was Shariq Ali, an MD/PhD student at UTMB who performs research with Erik Rhytting, PhD in the Department of Pharmacology and Toxicology.

Ali's research focuses on utilizing nanoparticles for cancer therapy. To most individuals, the size of nanoparticles is difficult to grasp, but for reference, if a nanoparticle was the size of a football then a football would be the size of Germany. The use of

Shariq Ali, an MD/PhD student at UTMB who performs research with Erik Rhytting, PhD in the Department of Pharmacology and Toxicology, working in the laboratory.

nanoparticles in Ali's work allows for control of the passage of drugs across biological barriers as they can be fine-tuned in a sense based on their size, surface characteristics, and ability to prevent drug efflux by membrane transporters. His research has demonstrated that encapsulation of the chemotherapeutic drug paclitaxel in nanoparticles may lead to differences in its transplacental permeability (ability of the drug to cross the placenta). The use of a nanoformulation may, therefore, treat the mother but lead to increases in the amount of drug that is exposed to the fetus, which could be detrimental to fetal health. This work demonstrates that the methodology of nanoformulations should be considered in future studies, particularly when considering fetal exposure to potentially harmful drugs.

The ITS congratulates Shariq Ali for his research efforts and is proud to support a young researcher who has a focus in translational medicine.