

UC San Diego to Lead Nationwide Program in Pharmacogenomics

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The Skaggs School of Pharmacy and Pharmaceutical Sciences at the University of California, San Diego, will collaborate with the American Pharmacists Association, the American Society of Health-System Pharmacists, and the American Association of Colleges of Pharmacy to promote *PharmGenEd*, in an educational campaign to more than 100,000 pharmacy practitioners and students across the country.

The "*Pharmacogenomics Education Program: Bridging the Gap between Science and Practice*" (*PharmGenEd*) is designed to educate pharmacists, students and other healthcare professionals in pharmacogenomics, the study of individual genetic differences in response to drug therapy.

The project has been funded for just over \$1 million for three years by the Centers for Disease Control and Prevention (CDC.) The program team will work closely with the CDC to develop educational curriculum that focuses on basic pharmacogenomics concepts as well as their clinical applications, incorporating live and online methods including web-based virtual communities.

It is becoming increasingly clear that individuals respond differently to different medications, depending upon their genetic makeup, which impacts drug effectiveness and safety, as well as potential side effects. A key component of the program will "train the trainer" in methods to teach the next generation of pharmacists in this fast-moving field.

The program's principal investigator, Grace M. Kuo, PharmD, MPH, explains: "The field of genomics and its scientific discoveries are developing at a dazzling pace. Pharmacogenomics has a promising potential to increase the response rate of drug therapy and decrease the events of adverse drug reactions. It may help us focus on safe and effective drug management to provide personalized medicine by choosing the most appropriate therapy for a particular patient." Currently, however, pharmacogenomics education materials are not readily available to healthcare professionals, and there appears to be a gap between healthcare providers' knowledge and the expectations of patients regarding pharmacogenomics testing.

A major aim of the program is to increase awareness of the use of pharmacogenomic testing and its potential implications. "Typing major genes affecting drug action has become cost effective and various genetic tests have been developed," said Kuo. "We will explore how these testing tools can be used to improve pharmacotherapy and prevent adverse drug outcomes in real practice, based on scientific evidence."

This project will also acquaint practitioners of pharmacy and medicine with sequence differences in the genome and how they may influence therapeutic outcomes. "The American Society of Health-System Pharmacists is pleased to support this important educational initiative," said Henri R. Manasse, Jr., Ph.D., Sc.D., the organization's CEO and executive vice president. "Pharmacists practicing in hospitals and health systems need to take a lead role in educating patients about what pharmacogenomics means for their individual therapy."

"Pharmacogenomics is all about tailoring drug therapy to genetic information," said Palmer Taylor, Ph.D., Dean of the Skaggs School and professor of pharmacology. "Recent research advances not only link genotypes

to differences in drug metabolism and disposition in the body, but also to differences in responsiveness of the sites at which drugs act."

Additional program core members are UC San Diego Skaggs School faculty members Kelly C. Lee, Pharm.,D, Joseph D. Ma, Pharm.D, James R. Halpert, Ph.D, Philip E. Bourne, Ph.D, and Theodore Ganiats, M.D., of the School of Medicine. Consultants include Karen S. Hudmon, Dr.PH., MS, R.Ph.,Purdue University, and Magnus Ingelman-Sundberg, Ph.D., Karolinska Institute in Sweden.

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