Abstract
The Skaggs School of Pharmacy and Pharmaceutical Sciences (SSPPS) at UC San Diego is rooted in the foundational sciences and innovative practice to impact human health. Our vision is to be a catalyst for interdisciplinary collaborations across the school, the medical school, the university, and with local and national biotechnology companies. We highlight one collaborative partnership between the newly formed Divisions of Pharmaceutical Chemistry, Pharmaceutical Sciences and Clinical Pharmacy that exemplifies interdisciplinary collaborations in the area of precision medicine. The goal of precision medicine is to individualize therapy by understanding the genetic and environmental factors that influence efficacy and toxicity. Utilizing our respective strengths across divisions of the school regarding clinical inquiry and ultra-sensitive mass spectrometry technology and metabolomics, we are investigating novel methods for detecting drugs in the skin. Molecular networking allows us to identify chemicals, endogenous compounds, and microbiota including some drugs and metabolites that have been ingested by patients. Clinically, we may be able to harness this technology to monitor drugs and metabolites for therapeutic efficacy/toxicity, adherence, or other biomarkers for disease. We are also investigating how the microbiome affects drug metabolism in humans. Using a phenotyping drug cocktail to evaluate drug metabolizing enzyme activity and perturbation of the microbiome with antibiotic therapy, we hope to elucidate how the gut microbiome influences bioavailability and intestinal metabolism. Evaluating the microbiome as a source of variability will aid in drug optimization. Together we are harnessing our expertise to answer clinically important questions in a deeper and more mechanistic way.

References