

MOLLY SCHMID

Professor, Entrepreneur-in-Residence, and Focus Track Champion – Pharmaceutical Discovery and Development

AREAS OF EXPERTISE

Antibiotics, antimicrobial drug discovery, genomics, infectious diseases, molecular biology and biochemistry, pharmaceutical development, proteomics

CONTACT INFORMATION

909-607-8565

molly_schmid@kgi.edu; <http://www.kgi.edu/mollyschmid>



Dr. Schmid earned her undergraduate degree in biology from SUNY Albany and her PhD in biology from the University of Utah. Before joining KGI, she spent ten years in the biotechnology industry in executive positions at Genencor International (Palo Alto, CA) and Microcide Pharmaceuticals (Mountain View, CA) and most recently as Senior Vice President of Preclinical Programs at Affinium Pharmaceuticals in Toronto, Ontario. Prior to working in the biotech industry, Dr. Schmid was an Assistant Professor of Molecular Biology at Princeton University. She is a fellow of the American Academy of Microbiology, a Searle/Chicago Community Trust Scholar and a Damon Runyon-Walter Winchell Fellow.

At KGI, Dr. Schmid teaches classes in entrepreneurship and science from a business perspective. Her scientific interest truly incorporates the business and science of drug discovery.

RESEARCH SYNOPSIS

Dr. Schmid's research at KGI combines two distinct areas of interest: antimicrobial drug discovery and innovation in the pharmaceutical industry and its challenges. The combination of these two areas gives KGI students real life scenarios of challenges that pharmaceutical companies face. Dr. Schmid's teaching and research focuses on how to make drug discovery faster, less risky and less expensive.

While an Assistant Professor of Molecular Biology at Princeton University, her research group discovered Topoisomerase IV in *Salmonella typhimurium* as well as a genetic strategy for identifying new antimicrobial targets. She is continuing her search for antimicrobial drugs at KGI.

CURRENT RESEARCH PROJECTS

Managing New Product Development in the Pharmaceutical Industry: Dr. Schmid's research efforts aim to better understand the lack of research productivity in the pharmaceutical industry. She has created methods allowing the identification and characterization of failed discovery-stage pharmaceutical projects, a subject that

is typically difficult to measure and not often discussed. This information provides a measure of early stage research activities occurring in pharmaceutical companies. This analysis is used to assess the key bottleneck points in the pipelines of pharmaceutical companies and to assess project management decision-making during the lengthy, failure-prone pharmaceutical R&D process.

Fail Early-Fail Fast Decisions in Pharmaceutical New Product Development (in collaboration with J. Darroch, Ito & Drucker School of Management, Claremont Graduate University): Dr. Schmid has created a method to measure pharmaceutical failure rates by measuring "innovation litter," and is developing and applying metrics to measure "fail early, fail fast/fail cheap" (FEFF) decision-making. These steps will determine the shape of the drug discovery and development pipeline. By applying these methods, pharmaceutical discovery managers may better allocate R&D resources for optimum effectiveness. Efficiencies adopted by companies in this stage of the pharmaceutical new drug development process may provide an enormous opportunity for achieving a competitive advantage for the innovating firm.

Antimicrobial Drug Discovery: Professor Schmid's lab is combining old and new approaches to the search for promising lead compounds that can enter the antimicrobial drug development pipeline. She is partnering with academic and industrial collaborators in the US and Canada to identify and characterize novel molecules that have potential to be new antimicrobial agents. Her approaches combine new methods in structure-guided drug discovery, with genetic and genomic methods for target identification and validation.

SELECTED PATENTS

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KECK GRADUATE INSTITUTE
of Applied Life Sciences

535 Watson Drive, Claremont, CA 91711
www.kgi.edu