



## 2012-2013 POCC Lecture Series

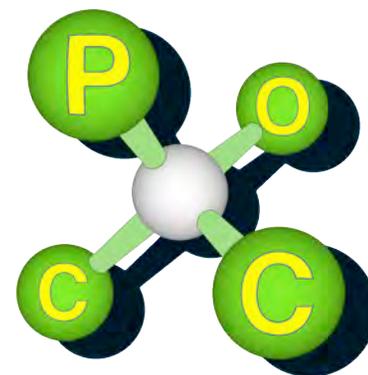
January 31, 2013, 8:00 PM

**Dr. Kelly M. Aubart**  
GlaxoSmithKline

*Discovery of Peptide Deformylase Inhibitor GSK1322322,  
a Novel Mechanism of Action Antibiotic*

Carolyn Hoff Lynch Lecture Hall  
Chemistry Building, University of Pennsylvania

The Philadelphia  
Organic Chemists' Club



POCClub.org

Kelly Aubart was born and raised in Atlanta, Georgia. As an undergraduate, she attended the University of North Carolina at Chapel Hill, where she conducted organic chemistry research in the labs of Professors Joseph DeSimone and Thomas Sorrell. With opportunities to spend summers as a research intern at Glaxo, Inc. in Research Triangle Park, NC, she developed a fascination with medicinal chemistry and its beneficial impact on human health. She continued her studies in organic chemistry at the University of California, Berkeley, working with Prof. Clayton Heathcock on the total synthesis of natural products. She obtained her Ph.D. in 1998, after completing the total syntheses of marine alkaloids Discorhabdin C and E, and the core tricyclic diether of the diterpene Dictyoxetane. Following her graduate studies, she joined SmithKline Beecham, now GlaxoSmithKline, in Collegeville, PA, where she has served as a matrix team leader of several drug discovery efforts, predominantly focused on new mechanism of action antibacterial agents.

**Abstract:** The lack of new antibiotics to combat multidrug-resistant bacterial infections is a serious threat to human health, and the Infectious Diseases Society of America has thus created the global '10 x 20 initiative' to discover 10 new antibiotics by 2020. However, many challenges are associated with identifying and developing novel mechanism of action antibacterials, ranging from obtaining sufficient drug penetration into bacterial cells to achieving adequate safety for the high systemic exposures typically required for clinical efficacy. Consequently, the last novel class of antibiotics to successfully reach the clinic was discovered over 25 years ago. Peptide deformylase is a clinically-unexploited antibacterial target that is essential for bacterial protein maturation. This seminar will describe the discovery of GSK1322322, an antibiotic that inhibits peptide deformylase and is currently in Phase II clinical trials.