2012-2013 POCC Lecture Series

September 27, 2012, 8:00 PM

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Bristol-Myers Squibb

Discovery and Development of a Scalable Synthesis for the HCV NS5B Inhibitor BMS-791325

Carolyn Hoff Lynch Lecture Hall
Chemistry Building, University of Pennsylvania

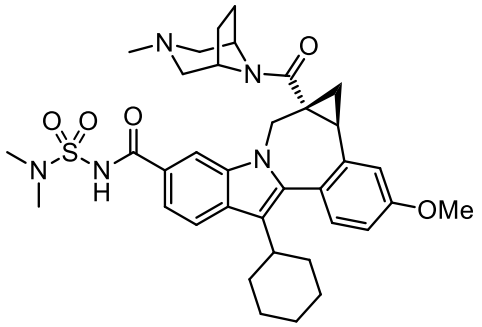
The Philadelphia Organic Chemists' Club

POCClub.org

Akin earned his B.S. and M.S. degrees in Organic Chemistry from The University of Texas at Austin. As an undergraduate, Akin worked in the laboratory of Professor N.L. Bauld studying the generation of cation radicals and their utility in organic synthesis. His Masters' thesis was completed under the guidance of Professor E.V. Anslyn, focused on the non-equilibrium generation and physico-chemical characterization of pentaoxyphosphorane anions. Akin earned his Ph.D. degree under the mentorship of Professor Amos B. Smith, III at The University of Pennsylvania. His efforts at Penn were focused on the synthetic chemistry of the Nodulisporane family of complex indole diterpenoid natural products, and culminated in the total synthesis of Nodulisporic Acid F and the construction of the heptacyclic core structures of Nodulisporic Acids A and D. During his academic training, Akin was the recipient of a Robert A. Welch Teaching Excellence Award (1999), an NIH Biotechnology Training Fellowship (1997 – 1999), and a Bristol-Myers Squibb Doctoral Fellowship (2003 – 2006).

In 1999, Akin joined the Process Research and Development group at The DuPont Pharmaceutical Company, which was acquired by Bristol-Myers Squibb (BMS) in 2001. Early in his career, Akin contributed to the BMS portfolio as a laboratory scientist, where he built extensive experience in route discovery and development, plant-scale execution, and technology transfer to foreign and domestic third-party manufacturers. In his current role as a senior research investigator and project leader, Akin develops and executes strategies to support the drug substance (API) requirements for key assets in the BMS R&D portfolio. Recently, Akin has led the chemical development efforts for KOS-1803 (a fully synthetic epothilone analogue acquired from Kosan Biosciences), MDX-1203 (an antibody-drug conjugate under evaluation for the treatment of non-Hodgkins lymphoma and renal cell carcinoma), and AM152 (for the treatment of idiopathic pulmonary fibrosis). In addition to his role at BMS, Akin currently serves as chair of the North Jersey ACS organic topical group.

Abstract: This lecture will detail the route discovery and development efforts that culminated in a convergent, enantioselective synthetic route capable of producing multi-kilogram quantities of drug substance. From the technical perspective, development and implementation of Davies' $Rh_2(DOSP)_4$-catalyzed asymmetric cyclopropanation chemistry and an unusual Pd-catalyzed C-H arylation reaction at pilot scale will be highlighted.



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