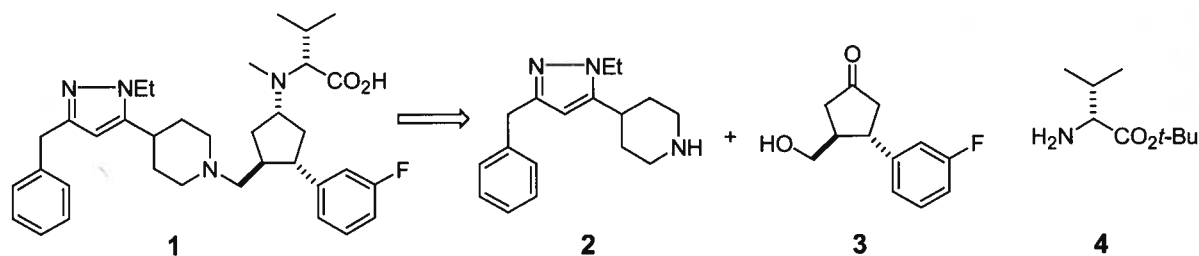


Stereoselective Synthesis of a Merck Anti-HIV Drug Candidate and Studies in the Development of the Mo-Catalyzed Asymmetric Alkylation Reaction

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Stereoselective synthesis of the Merck anti-HIV drug candidate **1** is accomplished from 3 components: substituted pyrazole **2**, chiral cyclopentanone **3**, and commercially available t-butyl valine **4**. The chemistry used in the preparation of intermediates **2** and **3** is described along with the final end game. In addition, development work on the Mo-catalyzed asymmetric alkylation reaction, including synthetic and mechanistic aspects of this reaction will be described.



Dr. Michael Palucki, Guest Speaker

Michael Palucki received his B.S. in chemistry from the California State University of Fullerton in May 1990. The following September he enrolled in graduate school at the University of Illinois and subsequently joined the Jacobsen research group. In 1993, he followed Professor Jacobsen to Harvard University, and attained his Ph.D. in December 1995. During his Ph.D. research, Dr. Palucki investigated the mechanism of the (salen)Mn(III) catalyzed epoxidation and discovered optimal conditions for the epoxidation of styrene and unfunctionalized olefins.

From January 1996 to August 1997, Dr. Palucki was an NIH Postdoctoral Fellow at MIT, where he worked for Professor Stephen L. Buchwald. During his time at MIT, Dr. Palucki discovered a Pd-catalyzed reaction for the direct arylation of alcohols and ketones, and expanded upon this work to report the first direct, asymmetric arylation of ketone enolates to form all-carbon quaternary centers. These discoveries would serve as the basis of later patents from the Buchwald research group.

In August 1997, Dr. Palucki accepted a position as a Senior Research Chemist in Process Research at Merck & Co. In June 2000, he was promoted to a Research Fellow, and as of June 2004 he resides as a Senior Research Fellow. Dr. Palucki currently is the group leader of 6 process chemists and is the co-author of 35 publications and 12 patents.