

Tungsten Dearomatization Agents for Organic Synthesis

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Recent developments will be summarized of our efforts to utilize aromatic molecules as substrates in the syntheses of novel alicyclic molecules for evaluation as potential new pharmaceutical leads. The method is based on formation of a complex in which an aromatic molecule is bound to a transition metal through two adjacent carbon atoms of the ring (dihapto-coordination). These dihapto-coordinate dearomatization reactions often lead to molecules representing new regions of chemical space. While in principle these new compounds could be prepared by conventional methods, in most cases they have not been, owing to the lack of any direct synthetic route. Specifically, this talk will focus on the development of a dearomatization strategies based on molybdenum and tungsten. Key practical advantages offered by these systems are greatly reduced cost, ease of removal of the metal from the organic product, and the efficient recyclability of the dearomatization agent.