

Preface

This volume consists of 11 chapters covering the metalation of azoles and related five-membered ring aromatic heterocycles. Given that metalation reactions are currently an extremely important synthetic method in all of organic chemistry, the present volume is very timely. Notably absent is a chapter dealing with the “Metalation of Indole,” which was covered in “Topics in Heterocyclic Chemistry” (2010), Vol. 26, *Heterocyclic Scaffolds II: Reactions and Applications of Indoles*.

In Chap. 1, Kishbaugh presents the “Metalation of Pyrrole” with applications to natural products and important materials and dyes.

In Chap. 2, “Furans and Benzofurans,” Yeung discusses the metalation chemistry of these oxygen heterocycles and related furo-heterocycles.

In Chap. 3, “Lithiation- and Magnesation-Based Strategies for the Functionalization of Imidazole: 2001-2010,” Alford summarizes the metalation chemistry of this important heterocycle.

In Chap. 4, Fu discusses the “Metalation of Oxazoles and Benzoxazoles” coverage that also includes the synthesis of these heterocycles involving metalation strategies.

In Chap. 5, Roy, Roy, and Gribble review the “Metalation of Pyrazoles and Indazoles,” including the application to the synthesis of pharmaceutical agents.

In Chap. 6, Badenock reviews the “Metalation Reactions of Isoxazoles and Benzisoxazoles,” including coverage of direct metalation, halogen-metal exchange, and Grignard formation.

In Chap. 7, “Thiazoles and Benzothiazoles,” Wu highlights the metalation of these ring systems and illustrates the power of metalation in total synthesis.

In Chap. 8, Nutaitis presents the metalation chemistry of “Isothiazoles and Benzisothiazoles,” including both benz[*c*]isothiazoles and benz[*d*]isothiazoles.

In Chap. 9, Biehl reviews the “Recent Advances in the Synthesis of Thiophenes and Benzothiophenes” mainly in the context of metalation chemistry.

In Chap. 10, Lopchuk details the metalation of “Mesoionics,” which are fascinating aromatic heterocycles that include sydnones, münchnones, and isomünchnones.

In Chap. 11, Lopchuk concludes this volume with the metalation of “Azoles with 3–4 Heteroatoms,” which include triazoles, tetrazoles, and oxadiazoles.

I am indebted to my authors for their truly outstanding contributions to what I believe is a timely and important addition to the chemistry of azoles. I particularly

thank my former students (Badenock, Kishbaugh, Alford, Fu, Roy, Roy, and Nutaitis) and one current student (Lopchuk) for their willingness to participate in this endeavor, and my heterocyclic colleagues and friends (Wu, Yeung, and Biehl) for their equally hard work. I especially thank my series editor Bert Maes for the opportunity to be the editor of this volume.

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Gordon W. Gribble

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