
Volume Editor's Preface

The year 2010 marked the awarding of the Nobel Prize in Chemistry to Professors Richard Heck, Ei-ichi Negishi, and Akira Suzuki for their contributions to the development of transition-metal-catalyzed cross-coupling reactions. As in any other scientific endeavor, these individuals relied heavily on the efforts of many prior generations of chemists, who laid the foundation for their brilliant discoveries. Scores of their contemporaries also made major contributions in advancing the field. The net result of this combined effort has been nothing less than a revolution in the manner in which the synthesis of organic molecules is carried out, both from the perspective of academic laboratories everywhere and for process and manufacturing facilities worldwide in the pharmaceutical, agrochemical, and materials science sectors of the chemical industry.

At this juncture, well over 1200 publications that pertain to Suzuki coupling reactions alone are published each year, and this number appears to be rising almost exponentially. Transformations that were unimaginable only a few decades ago are now routine, and processes are becoming ever more refined in all dimensions: efficiency, selectivity, and environmental sustainability.

It is in this atmosphere that the Editorial Board of **Science of Synthesis** made the wise decision to focus one of its **Science of Synthesis Reference Library** works on cross-coupling reactions, covering carbon—carbon bond formation, carbon—heteroatom bond formation, and Heck reactions. The present volume addresses carbon—carbon bond formation, and, in the tradition of previous **Science of Synthesis Reference Library** contributions, the chapters contained herein are not meant to be comprehensive reviews, but rather a compilation of “best practices”, i.e. those protocols that are most advanced and reliable, with a particular emphasis on breadth of scope rather than detailed minutiae.

As a widely acknowledged recognition of the importance of the transformations described herein, virtually all of the chemistry described in this volume has achieved “Name Reaction” stature, and the chapters are organized accordingly. Thus, Suzuki–Miyaura reactions, Hiyama cross coupling, Stille coupling, Negishi coupling, and finally Kumada coupling are discussed in sequence.

A work of this magnitude would not be possible without the enormous support and involvement of an impressive group of authors, and I thank each of them for the professionalism, dedication, and expertise they have displayed in making this volume possible. I also owe a great debt of gratitude to the outstanding staff at Thieme, in particular Dr. Alex Russell and Dr. Fiona Shortt de Hernandez, for making it such a great pleasure to put together yet another classic in Thieme's **Science of Synthesis** reference series.

G. A. Molander (Philadelphia, USA)

September, 2012