Organic Process Research & Development **2008,** *12,* 467

SPECIAL FEATURE SECTION: TRANSITION-METAL-MEDIATED C–C AND C–N BOND FORMATION

Editorial

It is hard to believe that it is 5 years since the last publication of a special feature section in *Org. Process Res. Dev.* (OPRD) that was dedicated to transition metal-catalyzed reactions. Such reactions are widespread throughout the fine chemical and pharmaceutical industries; therefore, the publication of this issue is very welcome. When discussing the content of the special issues at the OPRD editorial advisory board meetings it was decided to focus this issue on carbon−carbon and carbon−nitrogen bond-forming reactions, both enantioselective and achiral, as other recent special issues had highlighted the application of other homogeneous metal-catalyzed reactions such as hydrogenation, epoxidation, and desymmetrization.

It is gratifying to see that we have been able to attract many informative papers to this more focussed area, with contributions on rhodium-catalyzed asymmetric 1,4-additions, copper-catalyzed coupling and cycloaddition reactions, as well as a host of papers on palladium-catalyzed cross-coupling reactions. Metal contamination of pharmaceutical products is always an issue when developing transition metal-catalyzed reactions, with many authors discussing approaches to minimize catalyst loading and investigating efficient methods to remove residuals. The application of less toxic metals, such as copper, also features in this special issue with three papers on this topic. The recent guidelines from the European Medicines Agency (EMEA) discussing specification limits for residues of metal catalysts (see www.emea.europa.eu/pdfs/human/swp/444600.pdf) put palladium in Class 1A with an oral exposure limit of 10 ppm. Rhodium is in Class 1B, grouped with iridium, ruthenium, and osmium with a total limit of 10 ppm for all these metals combined. However, copper is Class 2 with an exposure limit of 250 ppm, a much more readily attained target.

Many of the transition metal-mediated processes presented in this special issue are described as "practical", "mild", "efficient", "robust", "facile", and "industrial". The use of these adjectives demonstrates the enabling nature of transition metal-mediated reactions and the reason why so many of these processes are used in industry today. Finally, we thank all of the authors who wrote articles for this issue, and we look forward to the next special issue on this important topic.

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OP800082J

10.1021/op800082j CCC: $40.75
Published on Web 05/01/2008