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## Preface

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This special issue of the Journal of Organometallic Chemistry, is an attempt to give an overview of the recent developments in palladium chemistry. W.A. Herrmann dedicated his paper to Professor E. O. Fisher, but since many authors took this opportunity to honor the scientific contributions of Professor Jean-Pierre Genet on the occasion of his 60th birthday, I offered Jean-Pierre's collaborators to write the preface of this special volume.

Professor Guy Bertrand  
Regional Editor of JOM

The fast-growing interest into organometallic chemistry has resulted in an increasing number of applications in homogeneous catalysis for the mild and highly selective production of fine chemicals. Among all organometallic compounds, palladium complexes have become indispensable tools for both common and state-of-the-art organic synthesis. Formerly used for redox reactions, palladium has achieved a prominent role in synthesis due to the combination of relatively high electronegativity, ready and reversible availability of two oxidation states, non-toxicity and easy handling. Discovered by Wollaston in 1803 and named after the asteroid Pallas, its studies on its versatile reactivity



probably began with the invention of the Wacker oxidation in 1959. One may also cite the earliest masterful contributions of Kolbe-Saytzeff, Paal-Amberger-Wieland-Ipatieff for reductions of alkenes, alkynes and ketones, the  $\pi$ -allylpalladium complexes reactivity developments of Tsuji-Trost, the intensive work on stoichiometric and catalytic C–C bond formations disclosed by Moritani, Fujiwara, Mizoroki, Nolley and Heck. A plethora of applications were then developed which contributed to place palladium-catalyzed reactions as one of the most important chemist's tools in order to form C–X bonds (X = O, N, S, metal) and especially to form C–C bond.

The large number of organic transformations which can be promoted, as well as the wide functional group tolerance make palladium an ideal candidate for devising original and highly efficient synthesis. Thus, the syntheses of natural products and biologically active compounds have been achieved through a minimum of chemical steps, taking advantage of these highly regio-, chemo- and diastereoselective Pd-promoted reactions.

Jean-Pierre Genet was born in Tulle (France) in 1942. He received his PhD from the University P. et M. Curie (Paris VI) in 1972 under the supervision of Professor J. Ficini where he worked on ynamines reactivity. In 1969, he became Assistant Professor at the University P. et M. Curie. Jean-Pierre Genet then moved to the United States (1965–1966) to spend a post-doctoral year with Professor B.M. Trost at the University of Wisconsin where he was engaged in the synthesis of Ibogamin using palladium complexes. He was promoted full Professor in 1980 at the University P. et M. Curie. In 1988 he moved to the Ecole Nationale Supérieure de Chimie de Paris (E.N.S.C.P.) and became Director of the Department of Organic and Bioorganic Chemistry. Professor Jean-Pierre Genet received an award from the French Chemical Society (Organic Division) and the French Academy of Sciences (Institut de France) in 1988 and 1998, respectively. He was Chairman of the French Chemical Society meetings (Organic Division) in Palaiseau in 1995 and 1998 and of OMCOS 10 (Versailles) in

1999. He was appointed Vice President of the French Chemical Society from 1999 to 2002.

His research interests include organometallic homogeneous catalysis, oxidations and carbon-carbon bond forming reactions, design and applications of water soluble transition metal complexes in cross-coupling and Heck reactions, design of chiral atropisomeric diphosphanes. Asymmetric catalysis and especially Ru-mediated hydrogenations have been developed, going from the setting of new tools and methodologies to their applications to the synthesis of biologically relevant targets. Significant contributions have been afforded to the discovery of new reactions for organic synthesis (electrophilic amination) and to the preparation of both natural products (ambruticin, podophyllotoxin, balanol, sulfobacin,...) and industrially relevant molecules (paradisone<sup>®</sup>, diltiazem). Jean-Pierre Genet's contribution to palladium chemistry has covered a large range of topics including the development of efficient inter- and intramolecular allylation processes, a new method for deprotecting allyloxycarbonyl groups and studies on palladium-mediated reactions in non-usual media (organosoluble and perfluorinated) or with organotrifluoroborates and diazonium salts. These methodologies have afforded original and efficient tools for organic synthesis. All these achievements were accomplished in collaboration with dedicated coworkers and several academic and industrial partners and were reported in more than 200 papers and 21 patents.

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