

## AIMS AND SCOPE

While total synthesis reached extraordinary levels of sophistication in the last century, the development of practical and efficient synthetic methodologies is still in its infancy. The goal of achieving chemical reactions that are economical, safe, environmentally benign, resource- and energy-saving will demand the highest level of scientific creativity, insight and understanding in a combined effort by academic and industrial chemists.

*Advanced Synthesis & Catalysis* is designed to stimulate and advance that process by focusing on the development and application of efficient synthetic methodologies and strategies in organic, bioorganic, pharmaceutical, natural product, macromolecular and materials chemistry. The targets of synthetic studies can range from natural products and pharmaceuticals to macromolecules and organic materials. While catalytic methods based on metal complexes or enzymes play an ever increasing role in achieving synthetic efficiency, all areas of interest to the practical synthetic chemist fall within the purview of *Advanced Synthesis & Catalysis*, including synthesis design, reaction techniques, separation science and process development.

Contributions from industrial and governmental laboratories are highly encouraged. It is the goal of the journal to help initiate a new era of chemical science, based on the efforts of synthetic chemists and on interdisciplinary collaboration, so that chemistry will make an even greater contribution to the quality of life than it does now.

# Advanced Synthesis & Catalysis

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## COMMENTARIES

Researchers in This Field Still Have Many Challenges in Front of Them, but the Future is Indeed Very Bright

1519

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Vittorio Farina

Heck and Cross-Coupling Reactions: Two Core Chemistries in Metal-Catalyzed Organic Syntheses

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- 1524** Transition Metal-Catalyzed Cross-Coupling and the Heck Coupling Processes: Powerful Reactions for Carbon-Carbon and Carbon-Heteroatom Bond Formation

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- 1525** Nickel-Catalyzed Cross-Couplings of Unactivated Alkyl Halides and Pseudohalides with Organometallic Compounds

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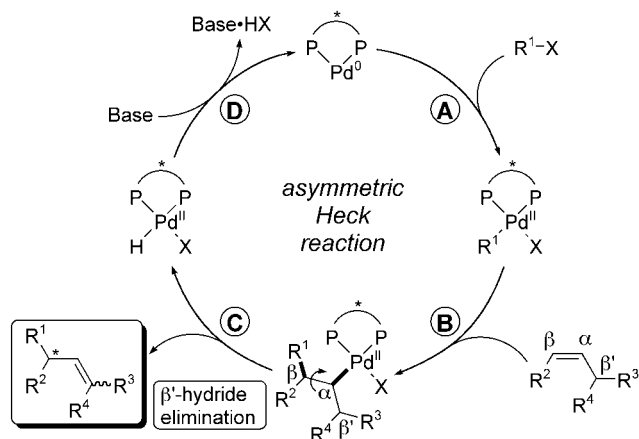
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- 1533** Asymmetric Heck Reaction

*Adv. Synth. Catal.* **2004**, 346, 1533–1552

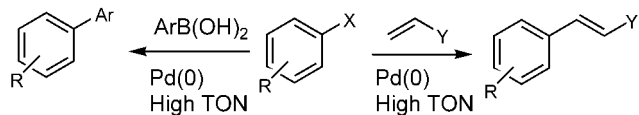
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- 1553** High-Turnover Palladium Catalysts in Cross-Coupling and Heck Chemistry: A Critical Overview

*Adv. Synth. Catal.* **2004**, 346, 1553–1582

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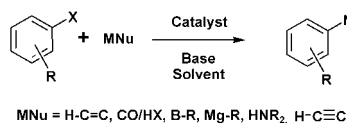


- 1583** Industrial R&D on Catalytic C–C and C–N Coupling Reactions: A Personal Account on Goals, Approaches and Results

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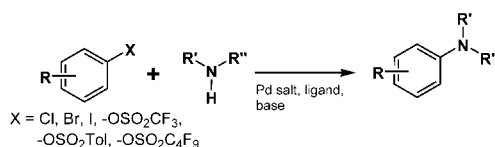
Industrial R&D topics

- Efficient catalyst systems
- Cheaper substrates
- Process development
- Functional group tolerance
- Catalyst separation

- 1599** Palladium-Catalyzed C–N and C–O Coupling – A Practical Guide from an Industrial Vantage Point<sup>†</sup>

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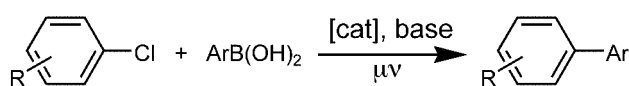


## COMMUNICATIONS

The Suzuki Coupling of Aryl Chlorides under Microwave Heating

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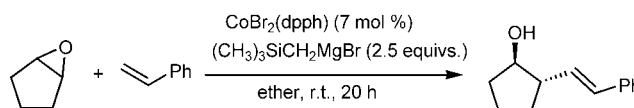


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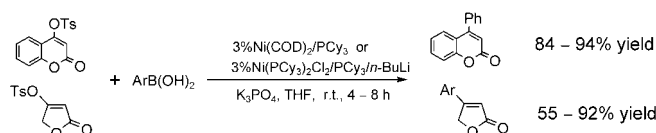


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*Adv. Synth. Catal.* **2004**, 346, 1635–1637

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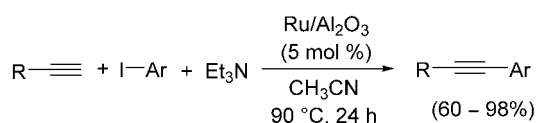
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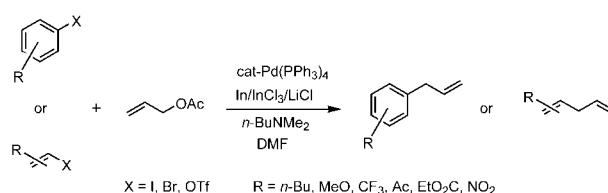


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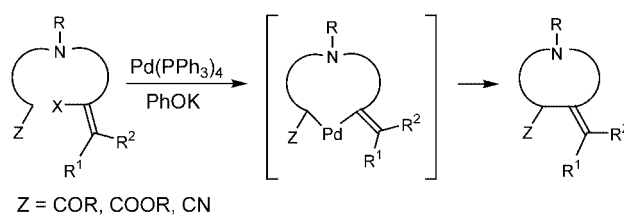
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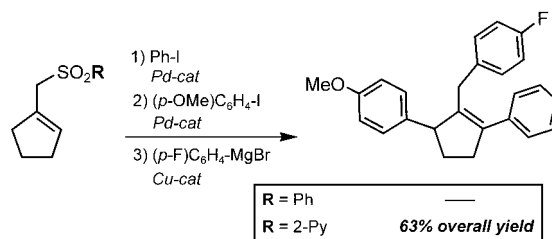


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**1651** Chelation-Induced Catalytic Multiple Arylation of Allylic 2-Pyridyl Sulfones

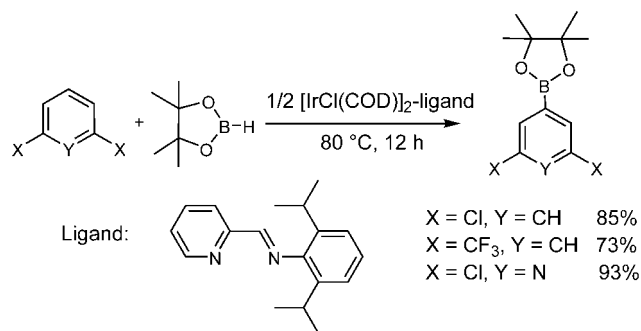
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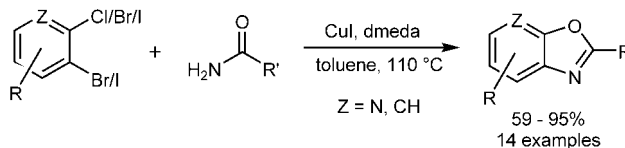
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**1661** A Domino Copper-Catalyzed C–N and C–O Cross-Coupling for the Conversion of Primary Amides into Benzoxazoles

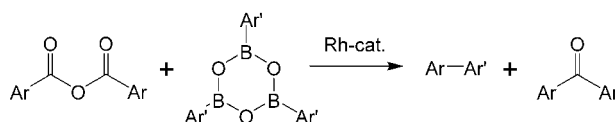
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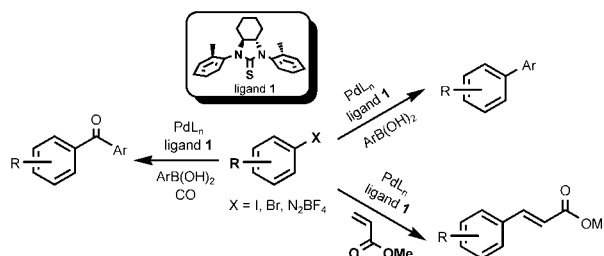
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**1669** A Novel Thiourea Ligand Applied in the Pd-Catalyzed Heck, Suzuki and Suzuki Carbonylative Reactions

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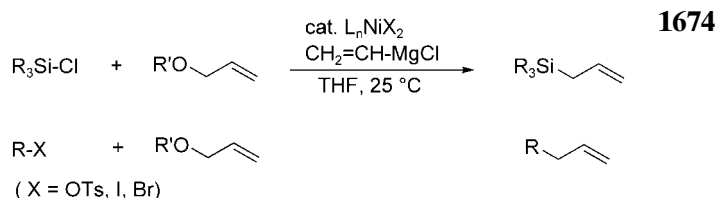

Dai Mingji, Bo Liang, Cuihua Wang, Zejin You, Jing Xiang, Guangbin Dong, Jiahua Chen,\* Zhen Yang\*



Novel Nickel-Catalyzed Coupling Reaction of Allyl Ethers with Chlorosilanes, Alkyl Tosylates, or Alkyl Halides Promoted by Vinyl-Grignard Reagent Leading to Allylsilanes or Alkenes

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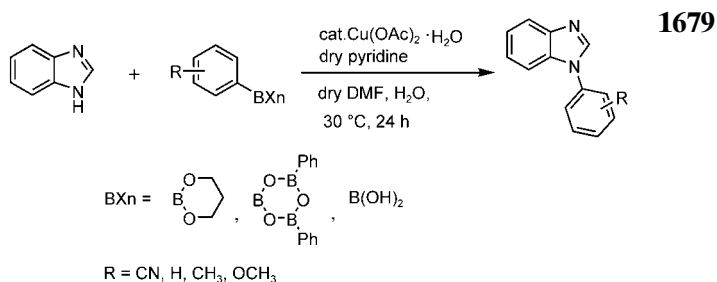
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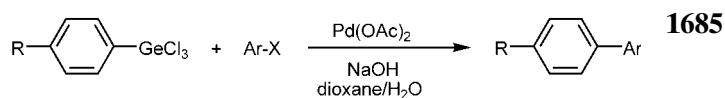


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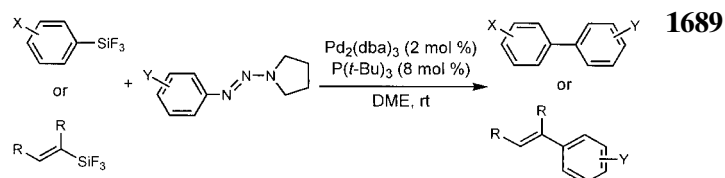
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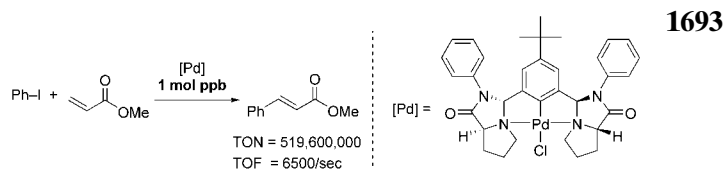
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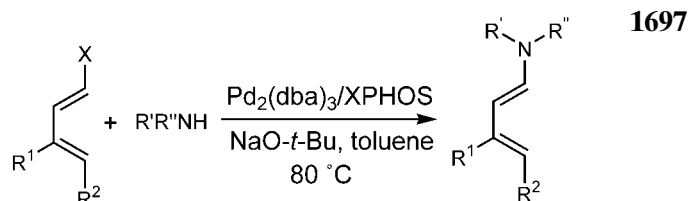


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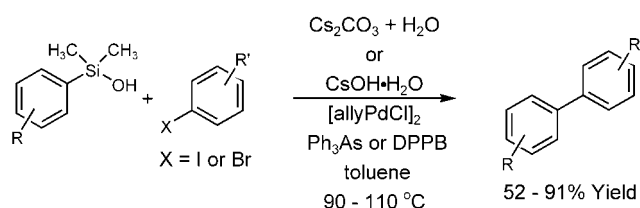
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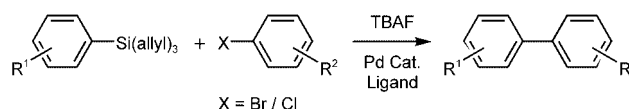
## FULL PAPERS

**1703** Palladium-Catalyzed Cross-Coupling Reactions of Substituted Aryl(dimethyl)silanol*Adv. Synth. Catal.* **2004**, *346*, 1703–1714

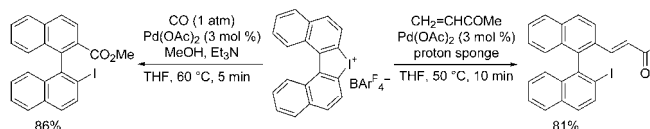
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**1715** Cross-Coupling of Triallyl(aryl)silanes with Aryl Bromides and Chlorides: An Alternative Convenient Biaryl Synthesis*Adv. Synth. Catal.* **2004**, *346*, 1715–1727

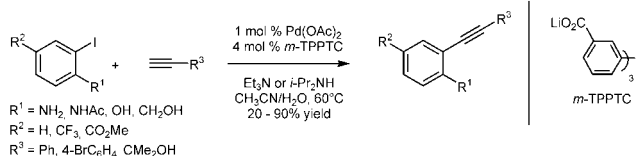
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**1728** Palladium-Catalyzed Heck and Carbonylation Reactions of a Dinaphthaleneiodonium Salt Forming Functionalized 2-Iodo-1,1'-binaphthyls*Adv. Synth. Catal.* **2004**, *346*, 1728–1732

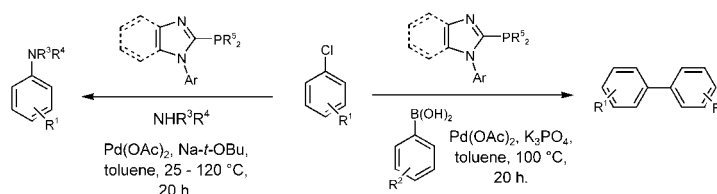
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**1733** A Novel Water-Soluble *m*-TPPTC Ligand: Steric and Electronic Features – Recent Developments in Pd- and Rh-Catalyzed C–C Bond Formations*Adv. Synth. Catal.* **2004**, *346*, 1733–1741

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**1742** Dialkylphosphinoimidazoles as New Ligands for Palladium-Catalyzed Coupling Reactions of Aryl Chlorides*Adv. Synth. Catal.* **2004**, *346*, 1742–1748

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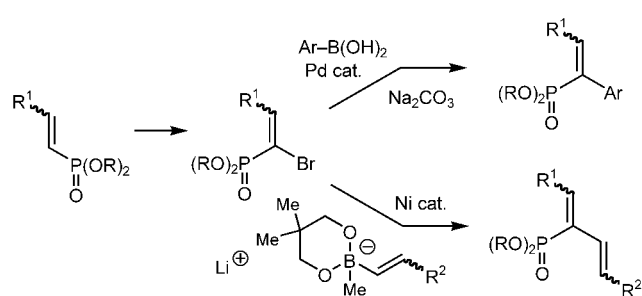


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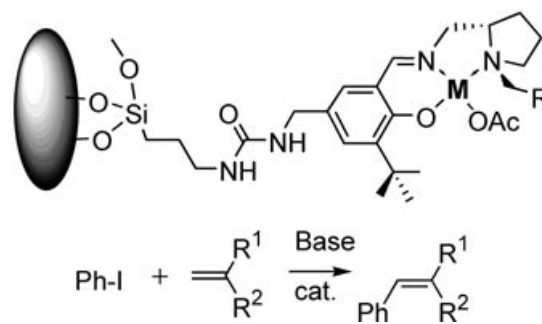


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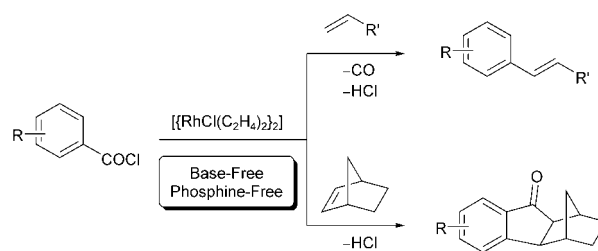


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*Adv. Synth. Catal.* **2004**, 346, 1765–1772

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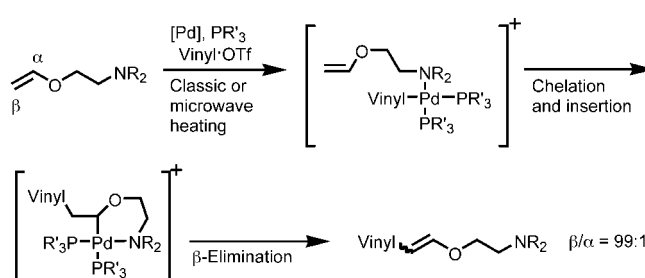
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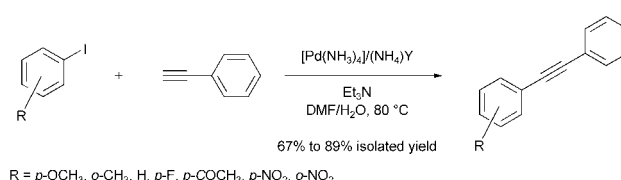
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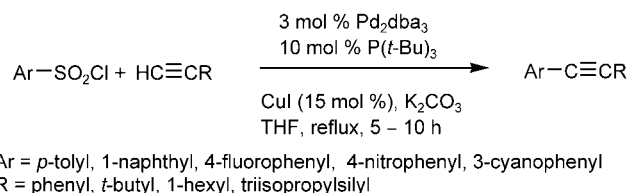


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- 1793** Palladium-Catalyzed Desulfitative Sonogashira–Hagihara Cross-Couplings of Arenesulfonyl Chlorides and Terminal Alkynes

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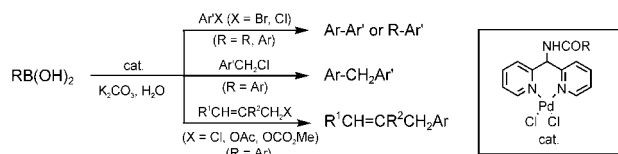
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- 1798** Suzuki–Miyaura and Related Cross-Couplings in Aqueous Solvents Catalyzed by Di(2-pyridyl)methylamine–Palladium Dichloride Complexes

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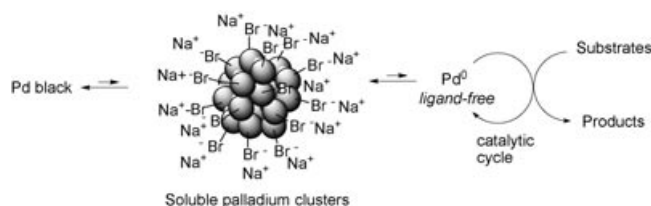
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- 1812** Use of “Homeopathic” Ligand-Free Palladium as Catalyst for Aryl–Aryl Coupling Reactions

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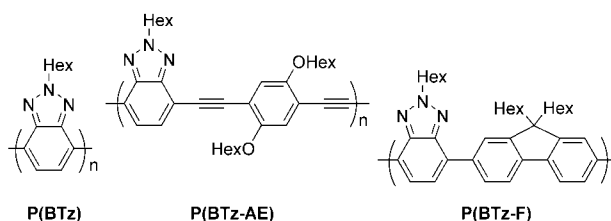
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- 1818** Nickel-2,2'-Bipyridyl and Palladium-Triphenylphosphine Complex Promoted Synthesis of New  $\pi$ -Conjugated Poly(2-hexylbenzotriazole)s and Characterization of the Polymers

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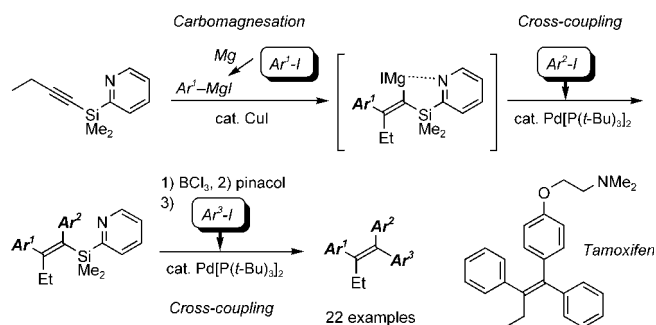


- 1824** Catalytic Carbometallation/Cross-Coupling Sequence across Alkynyl(2-pyridyl)silanes Leading to a Diversity-Oriented Synthesis of Tamoxifen-Type Tetrasubstituted Olefins

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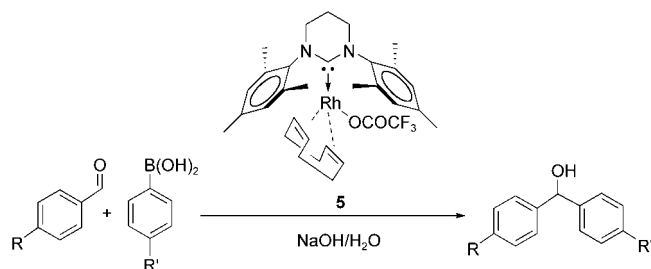


- 1836** Arylation of Carbonyl Compounds Catalyzed by Rhodium and Iridium 1,3-R2-Tetrahydropyrimidin-2-ylidenes: Structure–Reactivity Correlations

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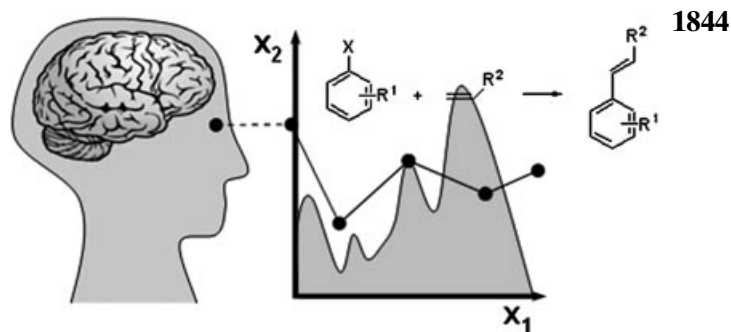


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*Adv. Synth. Catal.* **2004**, 346, 1844–1853



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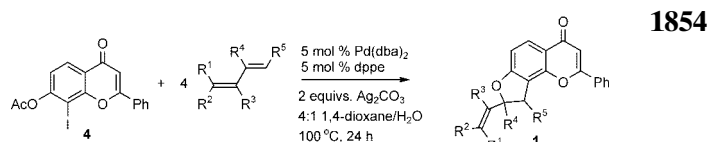


An Efficient Approach to Dihydrofuroflavonoids *via* Palladium-Catalyzed Annulation of 1,3-Dienes by *o*-Iodoacetoxyflavonoids

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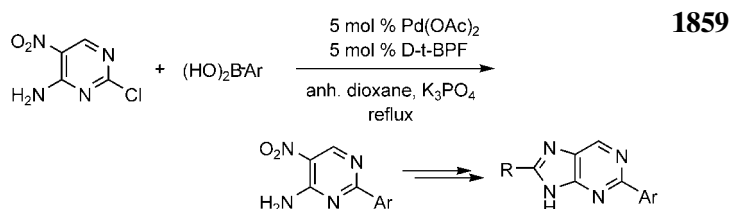
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A Novel Practical Synthesis of C-2-Arylpurines

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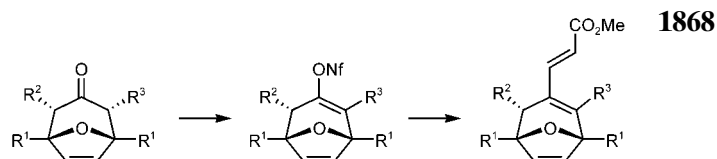
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Jens Högermeier, Hans-Ulrich Reissig,\* Irene Brüdgam, Hans Hartl



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Four articles that could not be included in this issue because of production deadlines can be seen online in Early View at <http://asc.wiley-vch.de> and will be published as a cluster in Issue 1, 2005:

- E. J. Farrington, C. F. J. Barnard, E. Rowsell, J. M. Brown, DOI: 10.1002/adsc.200404231.
- A. Micozzi, M. Ottaviani, G. Giardina, A. Ricci, R. Pizzoferrato, T. Ziller, D. Compagnone, C. Lo Sterzo, DOI: 10.1002/adsc.200404233.
- K. Yu, W. Sommer, J. M. Richardson, M. Weck, C. W. Jones, DOI: 10.1002/adsc.200404264.
- D. E. Bergbreiter, P. L. Osburn, J. D. Frels, DOI: 10.1002/adsc.200404270.