Recent Advances in the Synthetic Chemistry of Bicyclo[1.1.1]pentane

J. Kanazawa*  
M. Uchiyama*  
Japan Tobacco Inc., Japan  
RIKEN, Japan  
The University of Tokyo, Japan

Manganese-Catalyzed Direct Olefination via an Acceptorless Dehydrogenative Coupling of Methyl Heteroarenes with Primary Alcohols

M. K. Barman  
S. Waiba  
B. Maji*  
Indian Institute of Science Education and Research Kolkata, India
Recent Applications of α-Carbonyl Sulfoxonium Ylides in Rhodium- and Iridium-Catalyzed C–H Functionalizations

X. Wu
S. Sun
J.-T. Yu
J. Cheng*
Changzhou University,
P. R. of China

Synthesis of Functional Carbo-benzenes with Functional Properties: The C2 Tether Key

K. Cocq
C. Barthes
A. Rives
V. Maraval*
R. Chauvin*
CNRS, LCC (Laboratoire de Chimie de Coordination), France
Université de Toulouse, France

Structural Identification of Products from the Chloromethylation of Salicylaldehyde

E. Kadwa
H. B. Friedrich
M. D. Bala*
University of KwaZulu-Natal,
South Africa
**Direct Asymmetric \(\alpha\)-Hydroxylation of Cyclic \(\alpha\)-Branched Ketones through Enol Catalysis**

G. A. Shevchenko*  
G. Pupo*  
B. List*

Max-Planck-Institut für Kohlenforschung, Germany

\[
\text{R} + \text{PhN} \rightarrow \text{R} - \text{OH}
\]

13 examples up to 98.5:1.5 er

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**Synthesis and Optoelectronic Properties of Iptycene–Naphthazarin Dyes**

C. Dengiz  
Y.-C. M. Wu  
T. M. Swager*

Massachusetts Institute of Technology, USA

\[
\text{R} = \text{H} \quad \text{R} = \text{Me} \quad \text{up to 53% yield over 2 steps} \\
\times 0.10-0.12)
\]

---

**Synthesis of Conformationally Locked and C-Linked Analogues of Imidazole-Based Ketene Dithioacetal Fungicides**

J. Gagnepain  
S. Jeanmart  
D. Bonvalot  
O. Jacob  
C. Lamberth*

Syngenta Crop Protection AG, Switzerland

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**One-Pot Approach to Pyrido-4-phenanthridinones by Palladium-Catalyzed Annulation of 4-Quinolones with 2-Bromobenzyl Bromides**

T. Arasakumar  
S. Shyamsivappan  
S. Gopalan  
A. Ata*  
P. S. Mohan*  
Bharathiar University, India  
The University of Winnipeg, Canada

![Chemical structure](image)

- **R** = 6-F, 6-Cl, 6-OMe, 6-methyl, 6-ethoxy, 6-CF₃, 6-OCF₃, 6,7-difluoro, 6,7-dichloro, 6,7-dimethoxy  
- **R¹** = H, OMe, F, Cl  
- (1) **Benzylation**  
- (2) **C–H arylation**

* Readily available substrates  
* Sequential C–N/C–C bond formation  
* Mild conditions  

**Enantioselective Synthesis of 1- and 4-Hydroxytetrahydrocarbazoles through Asymmetric Transfer Hydrogenation**

Ö. Dilek  
S. Patir  
E. Ertürk*  
TÜBİTAK Marmara Research Center, Turkey

![Chemical structure](image)

- **R¹** = H, OCF₃  
- **R²** = H, Bn, Ts  
- **R** = H, Ts, MOM  
- **R¹** = H, OCF₃  
- **R²** = H, Bn, Ts  
- **X** = Cl, Br, I  
- **R¹** = Alkyl  
- **X** = Cl, Br, I  

**Cesium Carbonate-Promoted P-Alkylation of Phosphinecarboxamides**

X.-G. Chen  
Q.-L. Wu  
F. Hou  
X.-C. Wang  
Z.-J. Quan*  
Northwest Normal University, P. R. of China  
Gansu International Scientific and Technological Cooperation Base of Water-Retention Chemical Functional Materials, P. R. of China

![Chemical structure](image)

- **R¹** = H, CH₃, OCH₃, Cl  
- **R²** = Alkyl  
- **X** = Cl, Br, I  

- 17 examples  
- up to 85% yield  

- Air- and moisture-stable starting materials  
- Mild reaction conditions
Synthesis of the Deacetoxytubuvaline Fragment of Pretubulysin and its Lipophilic Analogues for Enhanced Permeability in Cancer Cell Lines

R. B. Reddy
P. Dudhe
V. Chelvam*
Indian Institute of Technology Indore, India

Regio- and Stereoselective Synthesis of Spirooxindoles via Mizoroki–Heck Coupling of Aryl Iodides

A. Adeyemi
A. Wetzel
J. Bergman
J. Brånalt
M. Larhed*
Uppsala University, Sweden

One-Pot Three-Component Synthesis of 2,4,5-Triaryl-1H-imidazoles in the Presence of a Molecular Sieve Supported Titanium Catalyst under Mild Basic Conditions

Á. Magyar
Z. Hell*
Budapest University of Technology and Economics, Hungary
**Toluene and its Derivatives as Atom-Efficient Benzylating Agents for Secondary Amines**

D. Schönbauer
F. Lukas
M. Schnürch*
TU Wien, Austria

Toluene and its derivatives as atom-efficient benzylating agents for secondary amines. 20 examples, up to 80% yield.

- 10 mol% Ni(OTf)₂
- 10 mol% PPh₃
- 2.0 equiv NaHCO₃
- 2.0 equiv C₃F₇I
- 140 °C, 24 h

**C–Te Cross-Coupling of Diaryl Ditellurides with Arylboronic Acids by Using Copper(I) Thiophene-2-carboxylate under Mild Conditions**

S. Koguchi*
Y. Shibuya
Y. Igarashi
H. Takemura
Tokai University, Japan

C–Te cross-coupling of diaryl ditellurides with arylboronic acids by using copper(I) thiophene-2-carboxylate under mild conditions. This reaction proceeds at room temperature. No base or acid is required. General-purpose solvents such as THF and methylene chloride can be used. Tellurium coupling proceeds selectively.

- 18 samples
- Up to 94% yield

**Synthesis of Naphthoic Acids as Potential Anticancer Agents**

L. M. Deck*
J. A. Greenberg
L. J. Whalen
D. L. Vander Jagt
R. E. Royer
University of New Mexico, USA

Synthesis of naphthoic acids as potential anticancer agents. 9 naphthoic acids from 3 precursors, ~34% over 3 steps.
Copper-Catalyzed C(sp³)–H Azidation of 1,3-Dihydro-2H-indol-2-ones Under Mild Conditions

W.-H. Bao
L.-H. Gao
W.-W. Ying
W.-T. Chen
G.-P. Chen
W.-T. Wei
Y.-Y. Liu
Q. Li
Ningbo University, P. R. of China
Huahua University, P. R. of China

Copper-Catalyzed C(sp³)–H Azidation of 1,3-Dihydro-2H-indol-2-ones Under Mild Conditions

R₁ = H, OMe, Me, Cl, Br
R₂ = H, Me, Ph, 4-Tol
R₃ = H, Me, Bn, Ph, Boc

DDQ-Mediated Cross-Dehydrogenative-Coupling Reaction of Secondary Amines with Dialkyl Phosphonates

M.-X. Cheng
J.-W. Lei
C.-X. Xie
Henan University of Chinese Medicine, P. R. of China

DDQ-Mediated Cross-Dehydrogenative-Coupling Reaction of Secondary Amines with Dialkyl Phosphonates

H₂N
R₁ \( \rightarrow \) \( \text{DDQ} \)
R₂ \( + \) \( \text{HP(OR₃)₂} \)
R₁ \( \rightarrow \)
R₂ \( \text{C–P bond formation} \)

25 examples
up to 92% yield