Dipeptide-Based Phosphonium Salt Catalysis: Application to Enantioselective Synthesis of Fused Tri- and Tetrasubstituted Aziridines

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Dipeptide-based phosphonium salt catalysis: application to enantioselective synthesis of fused tri- and tetrasubstituted aziridines. 52 examples, 85–99% yield, all >20:1 dr, up to >99.9% ee.

R3
O
X
Y n
X = Br, Cl
Y = H, O, CH2
n = 0, 1, 2
R3 = aryl

R1
R2
O

S
N
S
N
R2

R1 = H, alkoxy, alkyl, aryl, halogen
R2 = H, ester

Iridium-Catalyzed Asymmetric C–H Borylation Enabled by Chiral Bidentate Boryl Ligands

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Iridium-catalyzed asymmetric C–H borylation enabled by chiral bidentate boryl ligands. Up to 96% ee.
Recent Advances in the Synthesis of Acridines and Phenazines

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J. Cheng*
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Reprogramming Nonribosomal Peptide Synthesis by Surgical Mutation

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Base-Controlled One-Pot Chemoselective Suzuki–Miyaura Reactions for the Synthesis of Unsymmetrical Terphenyls

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Copper Aluminate Spinel in Click Chemistry: An Efficient Heterogeneous Nanocatalyst for the Highly Regioselective Synthesis of Triazoles in Water

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Copper Aluminate Spinel (CuAl2O4 NPs) is tested as an efficient heterogeneous nanocatalyst for the highly regioselective synthesis of triazoles in water. The reaction is performed under mild conditions at 90 °C.

Advantages:
* Simple removal of the catalyst
* Short reaction time
* High yields
* High diversity
* Green solvent

Highly Chemoselective Solvent-Free Synthesis of 1,3,5-Triaryl-1,5-diketones: Crystallographic Investigation and Intramolecular Weak Bifurcated H Bonds Involving Aliphatic C–H Group

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A solvent-free synthesis of 1,3,5-triaryl-1,5-diketones is demonstrated using NaOH/K2CO3 (1:1) grinding. The weak bifurcated H bonds involving aliphatic C–H group are characterized by crystallographic investigation.

Acetic Acid Catalysed One-Pot Synthesis of Pyrrolo[1,2-a]quinoxaline Derivatives

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London Metropolitan University, UK

Acetic acid catalysis is employed in a one-pot synthesis of pyrrolo[1,2-a]quinoxaline derivatives. The reaction is conducted with 10 mol% AcOH and yields are reported for 16 examples.
Direct Synthesis of N-Functionalized Dipropargylamine Linkers as Models for Use in Peptide Stapling

A. Renzetti*  
R. N. Rutherford  
K. Fukumoto  
D. Kunciw  
H. F. Sore  
D. R. Spring*  
University of Cambridge, UK

Stereoselective Synthesis of the A,E-Ring Bicyclic Core of Calyciphylline B-Type Alkaloids

B. S. Kumar  
S. Raghavan*  
Indian Institute of Chemical Technology, India

Copper(II)-Catalyzed C–N Coupling of Aryl Halides and N-Nucleophiles Promoted by Quebrachitol or Diethylene Glycol

F. Du  
Q. Zhou  
Y. Fu  
Y. Chen  
Y. Wu*  
G. Chen*  
Shenyang Pharmaceutical University, P. R. of China  
Yunnan Institute of Tropical Crops, P. R. of China
Synthesis of Acetamides from Aryl Amines and Acetonitrile by Diazotization under Metal-Free Conditions

Y.-F. Zeng
Y.-N. Li
N.-N. Zhang
H. Kang
P. Duan
F. Xiao
Y. Guo
X. Wen*
University of South China, P. R. of China

Reagents: TIOH, HbUONO, 60 °C

Products:
- without metal catalyst
- selective to aromatic amines
- 22 examples up to 85% yield

α-D-Galacturonic Acid as Natural Ligand for Selective Copper-Catalyzed N-Arylation of N-Containing Heterocycles

C. Yuan*
Y. Zhao
L. Zheng
Jinzhou Medical University, P. R. of China

Reagents: CuBr (5 mol%), GalA (10 mol%), K2CO3 (3.0 equiv)

Products:
- abundant source
- eco-friendly
- selective
- water-soluble

Copper(I)-Catalyzed Sulfenylation of 1,3-Dicarbonyl Substrates with Disulfides under Mild Conditions

J. Zhao
F. Yang
Z. Yu
X. Tang
Y. Wu
C. Ma
Q. Meng*
Dalian University of Technology, P. R. of China

Reagents: ArSSAr, copper(I)-catalyzed

Products:
- HIGH ATOM ECONOMY
- MILD CONDITIONS
- SIMPLE PROCEDURE WITH UP TO 95% YIELD

16 examples up to 95% yield
Preparation of α-L-Rhamnobiosides by Open and Conventional Glycosylations for Studies of the rHPL Lectin

F. Demeter
T. Balogh
T.-K. Fu
M. D.-T. Chang
Y.-C. Lee
A. Borbás
M. Herczeg
University of Debrecen, Hungary

Open or conventional glycosylations

Lectin binding studies:
1: 48–62%, 7 steps
2: 54–76% 9–10 steps

A Chemoenzymatic Formal Synthesis of Epoxyquinols A and B

J. A. Collins
C. J. Gerry
M. M. Duncan
Whitman College, USA

Ralstonia eutropha whole cells

BZDO = benzoate dioxygenase

Catalytic Asymmetric Synthesis of Atropisomeric Quinolines through the Friedländer Reaction

J. Wan
H. Liu
Y. Lan
X. Li
X. Hu
J. Li
H.-P. Xiao
J. Jiang
Wenzhou University, P. R. of China

CPA (10 mmol%)
PhCN, 5 Å MS, 20 h
17 examples

1. R = halo, alkyl, trifluoromethyl
2. R = alkyl

up to 94% yield
up to 95% ee