Recent Progress in Radical Decarboxylative Functionalizations Enabled by Transition-Metal (Ni, Cu, Fe, Co or Cr) Catalysis

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Recent Progress in Radical Decarboxylative Functionalizations Enabled by Transition-Metal (Ni, Cu, Fe, Co or Cr) Catalysis

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Recent Progress and Applications of Transition-Metal-Catalyzed Asymmetric Hydrogenation and Transfer Hydrogenation of Ketones and Imines through Dynamic Kinetic Resolution

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Recent Advances in Copper-Catalyzed Radical C–H Bond Activation Using N–F Reagents

Synthesis 2021, 53, 51–64
DOI: 10.1055/s-0040-1707234
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Recent Advances in Copper-Catalyzed Radical C–H Bond Activation Using N–F Reagents

Synthetic Approaches to Non-Tropane, Bridged, Azapolycyclic Ring Systems Containing Seven-Membered Carbocycles

Synthesis 2021, 53, 65–78
DOI: 10.1055/s-0040-1707385
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Synthetic Approaches to Non-Tropane, Bridged, Azapolycyclic Ring Systems Containing Seven-Membered Carbocycles

The Power of Iron Catalysis in Diazoo Chemistry

Synthesis 2021, 53, 79–94
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Phosphorylation of Carboxylic Acids and Their Derivatives with P(O)–H Compounds Forming P(O)–C Bonds

Phosphorylation of carboxylic acids and their derivatives forming P(O)–C bonds

acids, esters, amides, thioesters, etc.
decarboxylation
decarbonylation
and others
P(O)-sp²C, P(O)-sp³C, P(O)-sp³C bonds

Asymmetric Synthesis of Isoxazol-5-ones and Isoxazolidin-5-ones

Short Review

Isoxazol-5-ones:
OH-form (imine-like)
NH-form (enamine-like)
OH-form (enol-like)

Nitrone approach

Functionalization

Nitroso approach

Isoxazolidin-5-ones

Reactivity towards electrophiles and nucleophiles

Metal-Free Iodoperfluoroalkylation: Photocatalysis versus Frustrated Lewis Pair Catalysis

Frustrated Lewis Pair

vs

Irradiation

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MeONH$_2$·HCl-Mediated $\alpha$-Methylenation/Conjugate Addition of $\alpha$-Sulfonyl $\omega$-Hydroxyacetophenones with Methyl Sulfoxides: Route to 3-Sulfonylchroman-4-ones

DMSO as dual role $>30$ examples up to 93% yield

Synthesis of Aminoalkyl-Functionalized 4-Arylquinolines from 2-(3,4-Dihydroisoquinolin-1-yl)anilines via the Friedländer Reaction

60 °C 5 min to 150 h AcOH $R = \text{H, OMe; } R_1 = \text{H, Me; } R_2 = \text{H, Me; } R_3 = \text{H, OMe, Me, Br, NO}_2; \ R_4 = \text{Alk, Ar; } R_5 = \text{H, Alk, Allyl, Bn, Ac, COOEt}$

only for unsymmetrical acyclic aliphatic ketones ($R_5 = \text{Me, i-Pr, Allyl, Bn}$)

Stereoselective 1,4-Addition of Primary Alcohols to $\gamma$-Alkoxy-$\alpha,\beta$-unsaturated Esters

NaH $\text{CH}_2\text{Cl}_2$, $-23$ °C 17 examples up to 80% yield syn/anti up to 96:4

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**Simple Synthesis of Dimethyl Nitrobenzhydrylphosphonates and HeteroarylNitroarylacetonitriles via Vicarious Nucleophilic Substitution (VNS) Reaction**

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Ar = Ph, 2-furyl, 2-thienyl  
Y = PO(OMe)₂, CN  
Z = H, 2-Cl, 3-Cl, 2-I  
1-nitronaphthalene  
5-nitroquinoline  
18 examples

**Diastereoselective Synthesis of Alkylated 1,4-Cyclohexadiene Esters Using Epimeric Pyrroloimidazolones**

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D. Cadwallader  
C. Metallinos*  
Brock University, Canada

syn

1. Na, liq. NH₃  
2. LDA, THF, –78 °C  
3. EtI  
>95:5 dr

anti

1. Na, liq. NH₃  
2. LDA, THF, –78 °C  
3. EtI  
95:5 dr

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