FR901483: Synthetic Efficiency Remains a Challenge

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The Chemical Syntheses of Nannocystins

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A New Wave of Amide Bond Formations for Peptide Synthesis

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Directed ortho-Metalation of Arenesulfonyl Fluorides and Aryl Fluorosulfates

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A Graphene Oxide Nanosheet Supported NHC–Palladium Complex as a Highly Efficient and Recyclable Suzuki Coupling Catalyst

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Synthesis of 4-Organoselanyl-1H-pyrazoles: Oxone®-Mediated Electrophilic Cyclization of α,β-Alkynyl Hydrazones by Using Diorganyl Diselenides

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Bioinspired Synthesis of the Central Core of Halichonadin H: The Passerini Reaction in a Hypothetical Biosynthesis of Marine Natural Products

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Regioselective Synthesis of 5-(Trifluoromethyl)[1,2,4]triazolo[1,5-a]pyrimidines from β-Enamino Diketones

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A New Method for the Preparation of Bis(alkylamino)maleonitriles from Aliphatic Isocyanides with TMSCN and Bi(OTf)₃

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R = NC

TMSCN

CH₂Cl₂, rt

Bi(OTf)₃

R

13 examples

up to 43% yield

• In a single step

• Highly functional-group tolerant

• Simple and mild conditions

Copper-Catalyzed Three-Component Coupling Reaction of Aryl Iodides, a Disilathiane, and Alkyl Benzoates Leading to a One-Pot Synthesis of Alkyl Aryl Sulfides

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FG Ar

Me₃Si

SiMe₃

+ R`O

cat. Cu base

alkyl aryl sulfide

three-component coupling reaction via a single step
utility of a disilathiane as a sulfur source
expansion of an alkyl source to an alkyl benzoate

23 examples

Trichloroisocyanuric Acid Induced Chlorine Radical Cascade

Chlorination/Carbocyclization of Acrylamides: Constructing Chlorinated Oxindoles by C–Cl and C–C Bond-Forming Reactions

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R¹ = Cl, Br, F, CF₃, Me, Et
R² = Me, Et, Ph, Bn, CH₂CO₂Me
R³ = Me, Ph, Bn, CH₂OH, OTBS, OAc
R⁴ = H, Ph

Chlorine-radical-induced cyclization
Without metal or additional oxidant
Efficient C–Cl and C–C bond formation

23 examples

30–80% yield
Highly Efficient, Catalyst-Free, Diastereoselective, Diversity-Oriented Synthesis of Dihydrocoumarin–Pyroridine–Spirooxindoles Bearing Three Contiguous Stereocenters

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S.-W. Xu  
S.-Q. Chang  
X.-L. Liu*  
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Synthesis of 2-Fluoroacetoacetic Acid and 4-Fluoro-3-hydroxybutyric Acid

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Palladium-Catalyzed Decarboxylative [4+2] Cycloaddition of Vinyl Benzoxazinanones with Cyclic N-Sulfimines: Stereoselective Synthesis of Benzosulfamidate-Fused Tetrahydroquinazolines

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E. Kim  
S.-G. Kim*  
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Vinylation of Carbonyl Oxygen in 4-Hydroxycoumarin: Synthesis of Heteroarylated Vinyl Ethers

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S. Santra
G. V. Zyryanov
A. Majee*
Visva-Bharati (A Central University), India

Vinylation of 4-Hydroxycoumarin

O-Vinylation of 4-Hydroxycoumarin

Major

(E/Z = 3:1)

R = aryl, alkyl, heteroaryl

19 examples

73–86% yields

Conditions: BF₃·OEt₂ (20 mol%), neat, 80 °C, 10 min

Palladium-Catalyzed C–P Cross-Coupling between (Het)aryl Halides and Secondary Phosphine Oxides

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N. E. Borisova*
Lomonosov Moscow State University, Russian Federation

Pd-catalyzed cross-coupling

12 examples

35–95%

7 examples

75–98%

9 examples

35–91%

8 examples

68–98%

R = alkyl, aryl; X = I, Br, Cl;
R’ = EWG, EDG

Activation of Primary Amines by Copper(I)-Based Lewis Acid Promoters in the Solventless Synthesis of Secondary Propargylamines

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F. V. Rossi
F. Del Bello
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Method A: 9 examples up to 62% yield
i) CuSO₄ (30 mol%)/NaI (60 mol%), PhCOOH (5 mol%), solventless, N₂, 80 °C

Method B: 20 examples up to 85% yield
ii) MgSO₄, CoCl₂·6H₂O (30 mol%), solventless, N₂, r.t., 0.25 h

iii) CuI (30 mol%), solventless, N₂, 40 °C
Synthesis
Synthesis 2019, 51, 2397–2401
DOI: 10.1055/s-0037-1610862

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A Facile and Efficient Approach for the Synthesis of 3-Aryl-4-hydroxy-1,3-thiazolidin-2-ones

[Chemical reaction image]

80 °C, 21 h
72–90%
10 examples

Synthesis
Synthesis 2019, 51, 2402–2408
DOI: 10.1055/s-0037-1612279

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One-Pot Three-Component Synthesis of Pyrrolidin-2-ones via a Sequential Wittig/Nucleophilic Addition/Cyclization Reaction

[Chemical reaction image]

Synthesis
Synthesis 2019, 51, 2409–2429
DOI: 10.1055/s-0037-1611736

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The Quest for Double Vicinal C–H Bond Activation on the \((\eta^5:\eta^5\text{-Fulvalene})\text{diiridium Platform: Syntheses and Structures of (}\eta^5:\eta^5\text{-Fulvalene})\text{Ir}_2(\text{ortho-}\mu\text{-C}_6\text{H}_4)(\text{CO})_2 (r–l)\text{ and Related Complexes}\

[Chemical reaction images]
Green Access to α-Haloalkyl and α-Halobenzyl Esters, Versatile Intermediates for the One-Pot Two-Step Synthesis of O,O′-Diacyl Acetals Using Zinc-Based Ionic Liquid Catalyst

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14 examples up to 92% yield

\[ \text{BMIZnCl}_3 \]