Cationic Bismuth Compounds in Organic Synthesis and Catalysis: New Prospects for CH Activation

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Synthesis of β-Phenethyl Ethers by Base-Catalyzed Alcohol Addition Reactions to Aryl Alkenes

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From Straightforward Gold(I)-Catalyzed Enyne Cyclizations to more Demanding Intermolecular Reactions of Alkynes with Alkenes

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Radical-type Reactions Controlled by Cobalt: From Carbene Radical Reactivity to the Catalytic Intermediacy of Reactive o-Quinodimethanes

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Asymmetric Copper-Catalyzed C(sp)–H Bond Insertion of Carbenoids Derived from N-Tosylhydrazones

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Fe(ClO₄)₃·H₂O-Catalyzed Ritter Reaction: A Convenient Synthesis of Amides from Esters and Nitriles

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Fe(ClO₄)₃·H₂O (5 mol%) + R₂CN → R₂CONH₂

R¹: benzyl, sec-alkyl
tert-butyl
R²: aryl, benzyl, sec-alkyl

80 °C

42 examples 72–84% yield
14 examples 88–97% yield

one-pot reaction (87%)

drug synthesis

Itopride

(2-Benzoyloxyphenyl)acetyl (BnPAC): A Participating Relay Protecting Group for Diastereoselective Glycosylation and the Synthesis of 1,2-trans Glycosyl Esters

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BnO
SEt
O
O
OBn
R'
H
OBn
BnPAc

RCH

HO
HO
HO
HO
HO

1,2-trans glycosides

1,2-trans glycosyl esters

Copper-Catalyzed Base-Free N-Arylation of 8-Aminoquinoline Amides through Chelation Assistance

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R
N
HN
+ (PhiIPn)PF₆ or (ArMns)PF₆ → HO

Cu(OAc)₂ (20%) DCE, 80 °C

without base
without ligand

30 examples 23–88% yield
Dehydroxymethyl Bromination of Alkoxybenzyl Alcohols by Using a Hypervalent Iodine Reagent and Lithium Bromide

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Dehydroxymethyl bromination of alkoxybenzyl alcohols to bromides using a hypervalent iodine reagent and lithium bromide.

OH
PhI(OAc)₂, LiBr
CF₃CH₂OH
r.t., 10 min
15 examples
up to 99% yield

Synthesis of β-CF₃ Ketones through Copper/Silver Cocatalyzed Oxidative Coupling of Enol Acetates with ICH₂CF₃

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Synthesis of β-CF₃ ketones through copper/silver cocatalyzed oxidative coupling of enol acetates with ICH₂CF₃.

ArOAc
+ ICH₂CF₃
Cu(OAc)₂·H₂O
Ag₂SO₄
TBHP, Et₃N
CH₃CN, 100 °C
19 examples
21–70% yield
Simple substrates
High regio-selectivity

Copper-Catalyzed Synthesis of Substituted 4-Acylpyrazole Derivatives through a Cascade Transformation from N-Propargylic Sulfonylhydrazones and Diaryliodonium Salts

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Copper-catalyzed synthesis of substituted 4-acylpyrazole derivatives through a cascade transformation from N-propargylic sulfonylhydrazones and diaryliodonium salts.

TsN=N
+ R₂⁻⁺R₂⁺TIO⁻
Cu(OTf)₂ (10 mol%) DBE, H₂O, 80 °C in air
13 examples
41–66% yield
**Palladium(0)-Catalyzed Diastereoselective (3+2) Cycloadditions of Vinylcyclopropanes with Sulfonyl-Activated Imines**

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**Abstract**

Palladium(0)-catalyzed (3+2) cycloadditions of vinylcyclopropanes with sulfonyl-activated imines have been developed. The reactions proceed under mild conditions and are effective for a variety of EWG-substituted imines and vinylcyclopropanes, providing up to 99% yield and up to >50:1 dr.

**Keywords**
Pd(0), vinylcyclopropane, sulfonyl imine, cycloaddition, diastereoselectivity.

**Scheme**

![Chemical structures](image)

**Equation**

\[
Pd(0)(dba)\cdot CHCl_3 (1 \text{ mol\%})
\]

**Conditions**

Toluene, r.t.

**Yield**

31 examples up to 99% yield

**Diastereoselectivity**

up to >50:1 dr

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**Dimethylisosorbide (DMI) as a Bio-Derived Solvent for Pd-Catalyzed Cross-Coupling Reactions**

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**Abstract**

Dimethylisosorbide (DMI) has been explored as a bio-derived solvent for palladium-catalyzed cross-coupling reactions. It is effective as a solvent for the Sonogashira, Mizoroki-Heck, and Suzuki-Miyaura reactions, offering advantages such as a renewable source and low toxicity.

**Keywords**

DMI, palladium-catalyzed cross-coupling, bio-derived solvent.

**Scheme**

![Chemical structures](image)

**Reaction Conditions**

Sonogashira: 12 examples 65–98% yield

Mizoroki-Heck: 13 examples 47–91% yield

Suzuki-Miyaura: 13 examples 62–100% yield

**Keywords**

Sonogashira, Mizoroki-Heck, Suzuki-Miyaura, DMI.

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**Brønsted Acid Mediated Direct α-Hydroxylation of Cyclic α-Branched Ketones**

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**Abstract**

A Brønsted acid-mediated direct α-hydroxylation of cyclic α-branched ketones has been developed. The reaction utilizes 2.5 equiv of PhNO and 3.0 equiv of CH_2CO_2H in PhMe at r.t., providing α-hydroxy ketones in high yield.

**Keywords**

Brønsted acid, α-hydroxylation, cyclic α-branched ketones.

**Scheme**

![Chemical structures](image)

**Reaction Conditions**

PhNO (2.5 equiv)

CH_2CO_2H (3.0 equiv)

PhMe, r.t.

R = Ar, Alk

**Yield**

n = 0, 1, 2

α-hydroxy ketones

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Catalyst-Free Three-Component Synthesis of Spirobenzimidazolidines Bearing an Indole Scaffold

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K2S2O8-Mediated Arylmethylation of Indoles with Tertiary Amines via sp3 C–H Oxidation in Water

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Organic Photoredox Catalysis for Pschorr Reaction: A Metal-Free and Mild Approach to 6H-Benzo[c]chromenes

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[4-Iodo-3-(isopropylcarbamoyl)phenoxy]acetic Acid as a Highly Reactive and Easily Separable Catalyst for the Oxidative Cleavage of Tetrahydrofuran-2-methanols to γ-Lactones

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Na$_2$CO$_3$-Catalyzed O-Acylation of Phenols for the Synthesis of Aryl Carboxylates with Use of Alkenyl Carboxylates

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Synthesis of Multisubstituted Guanidines through Palladium-Catalyzed Insertion of Isonitriles

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