Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

F. Bourriquen, K. Junge, M. Beller
**Reassembly of Unsaturated C–C Bonds by a Cutting/Insertion Cascade**

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Since 2017

C1 Insertion  
C=C Cleavage  
Atom & step-economies  
Chemo & regioselectivities  
n = 0, 1, 2...

To be continued...

**Asymmetric Formal [3+2] Cycloaddition Reactions of 3-Isothiocyanato Oxindoles: an Update**

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Reductive Umpolung and Defunctionalization Reactions through Higher-Order Titanium(III) Catalysis

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Total Synthesis of the Caged Diterpenoid Atropurpuran

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Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

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L-Proline-Catalyzed Three-Component Reaction of 4-Chloro-3-formyl-coumarin, Sodium Sulfide, and α-Halo Ketones: A Direct Approach to Thieno[3,2-c]coumarins

**Highlights**

- Mild conditions
- No excess of inorganic bases
- 10 Examples up to 71% yield

**Chemical Reaction**

$$\text{Na}_2\text{S} \cdot 9\text{H}_2\text{O} \xrightarrow{\text{MeCN/H}_2\text{O} (1:1), \text{L-proline} (30 \text{ mol\%})} <10^\circ\text{C}, 30 \text{ min} \rightarrow \text{MeCN/H}_2\text{O} (1:1), \text{L-proline} (30 \text{ mol\%}) \xrightarrow{60^\circ\text{C}, 1 \text{ h}} X = \text{Br, Cl} \rightarrow \text{R} = \text{Ar, Het, Me, (CO)CO}_2\text{Et}$$

- **Mild conditions**
- **No use of thiol**
- **Accessible starting materials**
- **Easy purification**

**Photoredox Trifluoromethylation/Cyclization of N-Arylacrylamides with 4-(Difluoroamino)-1-[(trifluoromethyl)sulfonyl]pyridinium Tri-flate (TFSP)**

**Chemical Reaction**

$$\text{Me} \xrightarrow{\text{PC TFSP Ca}_2\text{CO}_3 \text{DCM, Ar, blue LEDs}} \rightarrow \text{Me} \xrightarrow{\text{SOF}_2\text{CF}_3 \text{OTf}} \rightarrow 16 \text{ examples up to 81% yield} \xrightarrow{\text{TFSP inexpensive and stable solid}}$$

**Transition-Metal-Free β-Selective C-Glycosylation of β-Glycosyl Boronates via Stereoretentive 1,2-Migration**

**Chemical Reaction**

$$\text{RO} \xrightarrow{\text{Bpin}} \xrightarrow{\text{[M]}} \xrightarrow{\text{cross-metathesis then H}_2} \xrightarrow{\text{H}} \xrightarrow{\text{Stereoretentive Coupling}}$$

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Synthesis of N–C Fused Bicyclic 1,3,5-Triazinane-2,4-dione Derivatives from Saturated Ring-Fused Urazoles

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Chemoselective Strain Release of Bicyclo[1.1.1]pent-1-yl Alcohols

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A Convergent Synthesis of Tetracyclic Indole Compounds by a Palladium-Catalyzed Cross-Coupling and Tandem Cyclization Reaction

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Palladium-Catalyzed C(sp²)–H Silylation via a Native-Amine-Directed Strategy

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Native-amine-directed strategy
C(sp²)–H silylation
Broad substrate scope

Pentagon-Fused Sumanenes on the Aromatic Peripheries en Route to the Bottom-Up Synthesis of Fullerenes

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Y. Yakiyama
H. Sakurai*
Osaka University, Japan

Introduction of C₁ or N₁ units
C₅₄X₆ (X = C or N) fragments
Six isolated five-membered rings

Application of Halogen-Bonding Catalysis for Markovnikov-Type Hydrothiolation of Alkenes

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Markovnikov-type
green solvent
high functionality tolerance
40 examples
Challenges and Strategies for Synthesizing Glutamyl Hydrazide Containing Peptides

M. Xu
N. S. MacArthur
C. M. Duong
S. Islam
J. P. McElwee
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