Unveiling Novel Synthetic Pathways through Brook Rearrangement

M. Agbaria, N. Egbaria, Z. Nairoukh

Brook rearrangement

\[
\begin{align*}
\text{O}^- & \quad \text{M}^+ \\
\text{R}_1^- \text{SiR}_3 & \quad \overset{\text{via}}{\iff} \quad \text{R}_1^- \text{O}^- \text{SiR}_3 \\
\text{R}_1^- \text{SiR}_3 & \quad \overset{\text{M}^+}{\iff} \quad \text{R}_1^- \text{O}^- 
\end{align*}
\]

Capabilities:
- C–C and C–X bond formation
- C–C and C–X bond cleavage
- Stereodefined olefins formation
- Annulation reactions
- Dearomatization reactions

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Recent Advances in the Multicomponent Synthesis of Heterocycles Using 5-Aminotetrazole

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Catalytic Asymmetric Synthesis of α-Mono and α,α-Disubstituted 5- and 6-Membered α-Aza-lactams

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Unveiling Novel Synthetic Pathways through Brook Rearrangement

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Brook rearrangement

\[ \text{RO}_1 \text{SiR}_3 \xrightarrow{\text{M}} \text{RO}_1 \text{SiR}_3 \]

Capabilities:
- C–C and C–X bond formation
- Annulation reactions
- C–C and C–X bond cleavage
- Dearomatization reactions
- Stereodefined olefins formation

Accessing meta-Enone-Substituted Anisoles using ArN$_2$BF$_4$ as Precatalyst via Rearrangement of Alkyne-Tethered Cyclohexadienones

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U. Das*
CSIR-National Chemical Laboratory, India

ArN$_2$BF$_4$ (5 mol%) in MeOH, 30 °C

* Mild reaction conditions
- Broad scope, 28 examples
- Up to 99% yield

Sequential Paired Electrochemical Transformation of Styrene Oxide via Anodic Meinwald Rearrangement and Cathodic Nitromethylation in an Electrochemical Flow Reactor with Catalytic Electrical Input

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Meinwald rearrangement

Nitromethylation

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Ketyl Radical Enabled Synthesis of Oxetanes

**Synthesis Challenge:** Access to Oxetanes from Unactivated Carbonyls and Alkenes

- Acetyl Iodide Activation of Carbonyls to α-Oxy Iodides
- Ketyl Radical Intermediate
- One Pot Protocol
- Trifunctionalized Oxetanes

BF₃·OEt₂-Mediated (3+2) Cycloaddition Reactions of Donor-Acceptor Cyclopropanes (DACs) with Cyanamides: Access to Cyclic Amidines

- BF₃·OEt₂ (3 equiv)
- DCE, 60 °C, 6 h
- Up to 85%

Metal-Free Synthesis of Selanyl-Substituted Chromenones via Selanylation/Cyclization of Alkynyl Aryl Ketones

- 25 examples, up to 82% yield

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Ex-Chiral-Pool Synthesis of Optically Active 4-Alkylidene-Tetrahydroisoquinolines – Key Intermediates for Crinane Alkaloid Total Syntheses

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Synthesis 2024, 56, 2537–2548
DOI: 10.1055/a-2328-2947

Synthesis of Methoxy Analogues of Coenzyme Q_{10} Metabolites from Parsley Seed Extracts via Baeyer–Villiger Rearrangement of Carbonyl-Substituted Polyalkoxybenzenes

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Synthesis 2024, 56, 2549–2557
DOI: 10.1055/s-0043-1775368

Radical Allylation of Aldehydes with Allenes by Photoredox Cobalt and Chromium Dual Catalysis

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Synthesis 2024, 56, 2558–2564
DOI: 10.1055/s-0043-1774866
Photocatalytic Annulation of Enaminones with Thioureas for the Synthesis of 2-Aminothiazoles via Tandem C=S and C=N Bond Formation

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Synthesis 2024, 56, 2565–2571
DOI: 10.1055/a-2315-1934

Electrochemical Oxidative Cross-Coupling for the Construction of C(sp^3)–C(sp^3) Bonds

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Synthesis 2024, 56, 2572–2580
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Cyclopentadienone and Pyrone Derivatives as Precursors of Electron-Deficient Cycloheptatrienes: Quantum Chemical Investigation and Synthesis

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Synthesis 2024, 56, 2581–2587
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Stereodivergent Synthesis of the Four Stereoisomers of Diethyl 4-Hydroxyphosphopipeolate from Ethyl (R)-4-Cyano-3-hydroxybutanoate

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