Palladium-Catalyzed Asymmetric Allylic Alkylation Strategies for the Synthesis of Acyclic Tetrasubstituted Stereocenters

Stereocontrol on prochiral electrophiles

Stereocontrol on prochiral nucleophiles

Syntheses of Cyanophycin Segments for Investigations of Cell-Penetration

R = H, FAM; X = OH, OMe, NMMe2
Unsymmetrical Difunctionalization of Two Different C–H Bonds in One Pot Under Transition-Metal Catalysis

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DG

A

B

DG

A

B

Regioselective · Unsymmetrical · Difunctionalization · One Pot

Guided by Evolution: Biology-Oriented Synthesis of Bioactive Compound Classes

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Natural products: biologically prevalidated evolutionary conserved molecular scaffolds

Structurally simplified NP-inspired scaffolds

NP-derived fragments

Libraries with enriched bioactivity
Novel small molecule modulators

Recent Developments in Polyene Cyclizations and Their Applications in Natural Product Synthesis

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Acyclic prochiral polyene substrates

Polyene cyclizations

(X = CR1R2, O)

Diverse polycyclic compounds
Electrochemical/Photochemical Aminations Based on Oxidative Cross-Coupling between C–H and N–H

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Synthesis and Reactivity of Mixed Dimethylalkynylaluminum Reagents

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S. Turcaud
E. Benedetti
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Syntheses of Cyclomarins – Interesting Marine Natural Products with Distinct Mode of Action towards Malaria and Tuberculosis

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Palladium(0)-Catalyzed Difunctionalization of 1,3-Dienes: From Racemic to Enantioselective

$$\begin{align*}
X = \text{Br, I, OTf, ONf, N, N}_2^+ \\
R' = \text{H, N, C} \\
\text{Nu} = \text{N, B, C, H, O, Si}
\end{align*}$$

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Recent Advances in Enantioselective C–C Bond Formation via Organocobalt Species

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Twofold Ferrocene C–H Lithiations For One-Step Difunctionalizations
Tris(acetylacetonato) Iron(III): Recent Developments and Synthetic Applications

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Hydrogen Atom Transfer

Oxidations

Radical Reactions

Cross-Couplings

Reactions with Alkenes/Alkynes

Borylations

α-Arylation of Amides from α-Halo Amides Using Metal-Catalyzed Cross-Coupling Reactions

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X = Cl, Br, I
M¹ = BrZ, MgX, ZnX, SiF³

7-Azaindoline Auxiliary: A Versatile Attachment Facilitating Enantioselective C–C Bond-Forming Catalysis

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stable

attachment to – CO₂H

nucleophile

electrophile
Electrophilic Activation of Amides for the Preparation of Poly-substituted Pyrimidines

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P. Adler
G. Hagn
H. Zhang
V. Tona
N. Maulide*
University of Vienna, Austria

Formation of Complex α-Imino Esters via Multihetero-Cope Rearrangement of α-Keto Ester Derived Nitrones

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K. M. Keiter
B. P. Zavesky
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Asymmetric Total Synthesis and Biological Evaluation of (+)-Cycloclavine

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Chemoenzymatic Total Synthesis of (+)-Oxycodone from Phenethyl Acetate

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M. Makarova
H. E. Dela Paz
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Silicon Grignard Reagents as Nucleophiles in Transition-Metal-Catalyzed Allylic Substitution

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Alkylpotassium-Catalyzed Benzylic C–H Alkylation of Alkylarenes with Alkenes

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Continuous Flow Chlorination of Alkenyl Iodides Promoted by Copper Tubing

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V. Kairouz
H. Lebel
A. B. Charette
G. Evano
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Rhodium-Catalyzed Cascade Annulative Coupling of 3,5-Diaryl-isoxazoles with Alkynes

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M. Miura
Osaka University, Japan

Electrophilic Sulfoximidations of Thiols by Hypervalent Iodine Reagents

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D. Zhang
M. Cao
C. Bolm
RWTH Aachen University, Germany
Enantioselective Electrochemical Lactonization Using Chiral Iodoarenes as Mediators

Electrolysis in Batch

Chiral Mediator

Electrolysis in Flow

up to 87% yield
up to 79% ee

Synthesis of the C1–C12 Fragment of Calyculin C

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Diastereoselectivities in Reductions of α-Alkoxy Ketones Are Not Always Correlated to Chelation-Induced Rate Acceleration

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