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

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**Syntheses of Cyanophycin Segments for Investigations of Cell-Penetration**

M. Grogg
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ETH-Zürich, Switzerland
**Unsymmetrical Difunctionalization of Two Different C–H Bonds in One Pot Under Transition-Metal Catalysis**

M. Murai *
K. Takai *
Okayama University, Japan

Regioselective  ·  Unsymmetrical  ·  Difunctionalization  ·  One Pot

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

G. Karageorgis
H. Waldmann *
Max-Planck-Institute of Molecular Physiology, Germany

Natural products: biologically prevalidated evolutionary conserved molecular scaffolds

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

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Imperial College London, UK

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

H. Zhang
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Synthesis and Reactivity of Mixed Dimethylalkynylaluminum Reagents

R. Piccardi
S. Turcaud
E. Benedetti
L. Micouin*
CNRS-Université Paris Descartes, France

Syntheses of Cyclomarins – Interesting Marine Natural Products with Distinct Mode of Action towards Malaria and Tuberculosis

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

X. Wu
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**Chemical Structures**

- **R**
- **X** = Br, I, OTf, ONf, N, N2+
- **R'** = H, N, C
- **Nu** = N, B, C, H, O, Si

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

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**Chemical Structures**

- **Ph**
- **Me**
- **Bpin**
- **OH**
- **N** = Me
- **BnO**
- **Bpin**
- **5-Mepy**

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Twofold Ferrocene C–H Lithiations For One-Step Difunctionalizations

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**Chemical Structures**

- **Fe**
- **R**
- **R'**
- **(*)R**
- **(*)R'**
- **E**
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

E. Barde
A. Guérinot*
J. Cossy*
PSL Research University, France

X = Cl, Br, I
M¹ = BR₂, MgX, ZnX, SiF₃

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

N. Kumagai*
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Electrophilic Activation of Amides for the Preparation of Poly-substituted Pyrimidines

T. Stopka
P. Adler
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H. Zhang
V. Tona
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Formation of Complex α-Imino Esters via Multihetero-Cope Rearrangement of α-Keto Ester Derived Nitrones

S. L. Bartlett
K. M. Keiter
B. P. Zavesky
J. S. Johnson*
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Asymmetric Total Synthesis and Biological Evaluation of (+)-Cycloclavine

S. R. McCabe
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Chemoenzymatic Total Synthesis of (+)-Oxycodone from Phenethyl Acetate

M. A. A. Endoma-Arias
M. Makarova
H. E. Dela Paz
T. Hudlicky*
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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

I. Sato
Y. Yamashita*
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The University of Tokyo, Japan
Continuous Flow Chlorination of Alkenyl Iodides Promoted by Copper Tubing

A. Nitelet  
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H. Lebel  
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Rhodium-Catalyzed Cascade Annulative Coupling of 3,5-Diaryl-isoaxazoles with Alkynes

T. Noguchi  
Y. Nishii  
M. Miura  
Osaka University, Japan

Electrophilic Sulfoximidations of Thiols by Hypervalent Iodine Reagents

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

Electrolysis in Batch

Electrolysis in Flow

Chiral Mediator

up to 87% yield
up to 79% ee

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

reducing agent

no rate acceleration but high dr

rate acceleration but low dr

Synthesis of the C1–C12 Fragment of Calyculin C

10 steps
7.5% overall yield

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DOI: 10.1055/s-0037-1610373
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