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

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Unsymmetrical Difunctionalization of Two Different C–H Bonds in One Pot Under Transition-Metal Catalysis

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

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

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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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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**

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*Reaction Scheme*

- **R**
- **Pd(0)**
- **R'**
- **X**
- **Nu**

**X** = Br, I, OTf, ONf, N, N₂+

**R'** = H, C, Br, O, Si

**Nu** = N, B, C, H, O, Si

**1,2-product**

**1,4-product**

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

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*Organocobalt Species*

- Hydroborylative cyclization
- Ring-opening allylation
- C–H activation–hydroarylation
- Allyl–aryl cross-coupling
- Intramolecular hydroacylation
- [2+2] cycloaddition–hydrovinylation

**Twofold Ferrocene C–H Lithiations For One-Step Difunctionalizations**

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*Ferrocene Reactions*
Tris(acetylacetonato) Iron(III): Recent Developments and Synthetic Applications

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

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

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

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

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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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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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H. Lebel*
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Rhodium-Catalyzed Cascade Annulative Coupling of 3,5-Diaryl-isoxazoles with Alkynes

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Electrophilic Sulfoximidations of Thiols by Hypervalent Iodine Reagents

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Enantioselective Electrochemical Lactonization Using Chiral Iodoarenes as Mediators

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S. Pirhaghani
T. Wirth*
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Electrolysis in Batch
Electrolysis in Flow

**Enantiomeric Excess (ee)**

- **AR-**
  - H, Me

**Yield**

- up to 87% yield
- up to 79% ee

Synthesis of the C1–C12 Fragment of Calyculin C

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A. M. P. Koskinen*
Aalto University School of Chemical Engineering, Finland

**Calyculin C**

10 steps
7.5% overall yield

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

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A. Y. Zhao
K. A. Woerpel*
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**Ph**

- | **Me**
  - | **OMe**

**Reduction Agent**

- LiAlH₄
- NaBH₄

**Diastereomeric Ratio (dr)**

- 96:4
- 40:60
- 63:37
- 88:12

**Rate Acceleration**

- no rate acceleration but high dr
- rate acceleration but low dr