Total Synthesis of Astellatol: A Three-Decade Synthetic Puzzle

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Key transformations:
1) A TMS group dominated facial selective hydrogenation
2) An intramolecular Pauson-Khand reaction formed the hydrindane scaffold
3) An unprecedented SmI₂-mediated reductive radical 1,6-addition forged the cyclobutane
4) A strategic oxidation/reduction unravelled extremely challenging late-stage trans-hydrindane synthesis

The Direct Pd-Catalyzed β-C(sp³)–H Activation of Carboxylic Acids

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• R = H, Alkyl, NR₂ • access to unnatural amino acids • non-quaternary acids • direct β C(sp³)–H Activation of aliphatic carboxylic acids
Proline-Catalyzed Asymmetric α-Amination in the Synthesis of Bioactive Molecules

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Guanidines as Reagents in Proton-Coupled Electron-Transfer Reactions and Redox Catalysts

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Synthesis of Polycyclic Frameworks through Iron-Catalyzed Intramolecular [5+2] Cycloaddition

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Y. Zhang
X. Wang
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**Exploration of the Role of Double Schiff Bases as Catalytic Intermediates in the Knoevenagel Reaction of Furanic Aldehydes: Mechanistic Considerations**

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L. A. Canalle
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Avans University of Applied Science, The Netherlands

**Efficient Preparation of Cyclic $\alpha$-Alkylidene $\beta$-Oxo Imides by Using a Flow Microreactor System**

K. Komuro
A. Nagaki
H. Shimoda
M. Uwamori
J.-i. Yoshida
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Waseda University, Japan

**Photophysical and Electrochemical Properties and Anticancer Activities of Porphyrin-Cored Fluorenodendrimers Synthesized by Click Chemistry**

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A ‘Turn-on’ Fluorescence Glycosyl Dithiocarbamate Probe for Selective Fluoride Sensing in Aqueous Medium

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Chiral VAPOL Imidodiphosphoric Acid-Catalyzed Asymmetric Vinylogous Mannich Reaction for the Synthesis of Butenolides

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X. Guan
D. An
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A Synthesis of Novel Perinaphthenones from Acetylenic Esters and Acenaphthoquinone–Malononitrile Adduct in the Presence of Triphenylphosphine

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M. R. Halvagar
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The Acceleration of the Rearrangement of α-Hydroxy Aldimines by Lewis or Brønsted Acids

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The acceleration of the rearrangement of α-hydroxy aldimines by Lewis or Brønsted acids is reported. The transformation proceeds via a silica gel or Montmorillonite K 10 mediated process, yielding 18 examples with 28–100% yield. The rearrangement is particularly effective with R¹ = aryl, alkyl, and R² = aryl.

A Convenient Synthesis of Functionalized 2,3-Diazaspiro[4.4]nona-1,6,8-trienes

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A convenient synthesis of functionalized 2,3-diazaspiro[4.4]nona-1,6,8-trienes is described. The reaction involves the use of Rh(III) catalyst and proceeds with R¹ = iBu, cyclohexyl, R² = Me, Et, Ar = Ph, peri-Tol, 4-MeOC₆H₄, 4-Me₂NC₆H₄, yielding 13 examples with 95–70% yield.

Rhodium(III)-Catalyzed C–H Activation/Alkylation of Diazabicyclic Olefins with Aryl Ketones: Facile Synthesis of Functionalized Cyclopentenes

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Rhodium(III)-catalyzed C–H activation/alkylation of diazabicyclic olefins with aryl ketones is reported. The reaction results in the synthesis of functionalized cyclopentenes, with R = Et, Pr, 'Bu, Bn, R' = OMe, Me, Br, CF₃, Cl, 12 examples (65–85%), and 3,4 functionalized cyclopentene.
Synthesis of Thiophosphates by Coupling of Phosphates with Bunte Salts under Mild Conditions

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Q. Liu
S. Lin
Z. Yan
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Synthesis of Unnatural Arundines Using a Magnetically Reusable Copper Ferrite Catalyst

P. T. Ha
O. T. K. Nguyen
K. D. Huynh
T. T. Nguyen
N. T. S. Phan
HCMC University of Technology, Vietnam

New Cyano-Group-Containing 1,3-Oxaselenoles: Nucleophilic Substitution of a Cyano Group with Rearrangement

A. V. Kachanov
A. V. Zamarayev
A. V. Gerasimenko
K. V. Maslov
O. Yu. Slabko
V. A. Kaminskii
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An Efficient Direct Access to Carbamates from Alcohols and TosMIC Mediated by Iodine in DMSO

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R-OH + TosMIC + I₂ (0.6 equiv) → R-N=O-Ts

- Mild reaction conditions
- Easily available starting materials
- Shorter reaction times

78–94% yield

Mild reaction conditions
Easily available starting materials
Shorter reaction times

37 examples

An Efficient Direct Access to Carbamates from Alcohols and TosMIC Mediated by Iodine in DMSO

Length Matters: One Additional Methylene Group in a Reactant is Able to Affect the Reactivity Pattern and Significantly Increase the Product Yield

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N. D. Zelinsky Institute of Organic Chemistry of the Russian Academy of Sciences, Russian Federation

Oligomers (m ≥ 2)

Oligomers (m ≥ 2)

A Domino Process for the Sustainable Synthesis of Quinazolin-4(3H)-ones with Direct Chemo- and Regioselective Bromination

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M. Adib*
R. Yazzaf
M. Jahani
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Novel protocol for the synthesis of 4(3H)-quinazolinones
Chemo- and regioselective bromination by bromoacetyl bromide
Selective synthesis of mono- or dibrominate by use of different amounts of bromoacetyl bromide and solvent
One-pot method with simple workup
Good to excellent yields

8 examples
75–90%

12 examples
85–95%

5 examples
75–90%

8 examples
78–90%

8 examples
75–90%
Chloramine Salt Mediated Oxidative Halogenation of Terminal Alkynes with KI or NaBr: Practical Synthesis of 1-Bromoalkynes and 1-Iodoalkynes

- Practical approach
- Simple operation
- Gram-scale synthesis
- General access to 1-bromoalkynes and 1-iodoalkynes

Ligand-Free CuI-Catalyzed Chemoselective S-Arylation of 2-Mercapto-benzimidazole with Aryl Iodides

- 32 examples
- up to 92% yield

Nitrile Hydration Reaction Using Copper Iodide/Cesium Carbonate/DBU in Nitromethane–Water

- total 30 examples
- up to 90% yield, 9 examples 70–89% yield, 8 examples selective amide formation
- scalable up to 1.0 g (10 mmol)
- useful for nitrile hydration of the ester or carbamate groups
A De Novo Synthetic Route to 1,2,3,4-Tetrahydroisoquinoline Derivatives

**R. A. Ábrahámi**  
S. Fuster  
F. Fülöp*  
L. Kiss*  
University of Szeged, Hungary

**Cu-Catalyzed Conjugate Addition of Grignard Reagents to Thiochromones: An Enantioselective Pathway for Accessing 2-Alkylthiochromanones**

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Guizhou Normal University, P. R. of China

**Transition-Metal-Free Synthesis of Thiosulfonates through Radical Coupling Reaction**

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G.-P. Chen  
W.-T. Wei*  
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