Aldehyde Carboxylation: A Concise DFT Mechanistic Study and a Hypothetical Role of CO₂ in the Origin of Life

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Combining Defects in a Single Nanographene: A Fully Helical Saddle Ribbon

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Potassium Alkoxide/Disilane-Mediated Dehalogenative Deuteration

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Equation:

\[ \text{Ar} \text{X} + \text{KOMe/Me}_3\text{SiSiMe}_3 \rightarrow \text{Ar-D} \]

- Transition-metal-free
- Mild reaction conditions
- Cheap deuterium source
- High incorporation yield and D content

up to 91% yield

Enantioselective Reductive Diarylation of Alkenes by Ni-Catalyzed Domino Heck Cyclization/Cross Coupling

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Equation:

\[ \text{Br} \text{Ar} + \text{Br} \text{AR} \rightarrow \text{R} \text{R} \text{Ar} \text{Ar} \]

- Mild conditions & broad substrate scope
- All-carbon quaternary centers
- High enantioselectivity
- No preprepared organometallic reagents

33 examples
30–81% yield
90–99% ee

Sharpening Up Your Spectra: Broadband Homonuclear Decoupling in HSQC by Real-Time Pure Shift Acquisition

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Conventional HSQC

-chemical shifts (ppm)

Pure shift HSQC

-chemical shifts (ppm)
Recent Developments in the Synthesis of Nitrogen-Containing Heterocycles through C–H/N–H Bond Functionalizations and Oxidative Cyclization

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Halotrimethylsilane-Nitrite/Nitrate Salts: Efficient and Versatile Reagent System for Diverse Organic Synthetic Transformations

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Nickel-Catalyzed β-Carboxylation of Ynamides with Carbon Dioxide

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New Facile Synthesis of 3,4-Dihydroquinazoline-2(1H)-thiones by a Sequential Ugi-Azide/Staudinger/Aza-Wittig/Cyclization Reaction

\[
\text{R}^1\text{N} = \text{H}, \text{Me}, \text{Cl} \quad \text{R}^2 = \text{aryl, alkyl} \quad \text{R}^3 = \text{alkyl} \\
17 \text{ examples}
\]

Synthesis of 6-Chloro-5-(trifluoroacetyl)pyridine-3-carbonitrile: A Novel, Versatile Intermediate for the Synthesis of Trifluoro-methylated Azaindazole Derivatives

\[
\text{R} = \text{alkyl, aryl, hetaryl} \quad \text{R}^1 = \text{CN, CO}_2\text{H} \\
16 \text{ examples}
\]

Synthesis of Perfluoroalkyl-Substituted Oxindoles through Organophotoredox-Catalyzed Perfluoroalkylation of N-arylacrylamides with Perfluoroalkyl Iodides

\[
\text{R}^1 = \text{X, Me, i-Pr} \quad \text{R}^2 = \text{Me, Et, i-Pr, Bn, etc.} \quad \text{R}^3 = \text{H, Me, Bn} \quad \text{R}^4 = \text{H, Me} \\
26 \text{ examples up to 88% yield}
\]
Enantioselective Arylation of 3-Carboxamide Oxindoles with Quinone Monoimines and Synthesis of Chiral Spirooxindole-benzofuranones

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S.-H. Zhao
S.-B. Cheng
X.-Y. Xu
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R1 = H, Alkyl, Halide
R2 = Alkyl
R3 = Aryl, Alkyl
R4 = H, Halide
R5 = Sulfonyl

23 examples
up to 99% yield
up to 98% ee

Palladium-Catalyzed Regioselective Heck–Suzuki–Miyaura Cascade Cyclization for the Synthesis of Trisubstituted Arylideneisoquinolinones

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B. Larijani
P. Rashidi Ranjbar*
R. Rahimi
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Tehran University of Medicinal Sciences, Iran

Heck–Suzuki–Miyaura Domino reaction

16 examples
68–82% yield

Brønsted Acids of Anionic Chiral Cobalt(III) Complexes as Catalysts for the Iodoglycosylation or Iodocarboxylation of Glycals

R. Wang
W.-Q. Wu
N. Li
J. Shen
K. Liu
J. Yu*
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31 examples
up to 84% yield,
9:1 dr (a/b)

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The Hudrlik–Peterson Reaction of Secondary cis-TMS-Epoxy Alcohols and its Application to the Synthesis of the Fatty Acid Intermediates

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Fe-Catalyzed Bisphosphorylation of Amino-2-en-1-ones with Trialkyl Phosphites

S. Guo
K. Jie
L. Huang
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Z. Fu
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Highly Regioselective Phosphine-Promoted [2+2+2] Annulations of Cyanoacetylenes and N-Tosylimines to 1,2-Dihydropyridine-3,5-dicarboxonitrile Derivatives

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Triphenylphosphine Oxide-Catalyzed Selective α,β-Reduction of Conjugated Polyunsaturated Ketones

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