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

Potassium MeO/Me3SiSiMe3 (KOMe/Me3SiSiMe3) in CD3CN at room temperature (rt) mediates dehalogenative deuteriation. This methodology is transition-metal-free, employs mild reaction conditions, uses a cheap deuterium source, and can incorporate high levels of deuterium (up to 91% yield).

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

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Wuhan University, P. R. of China

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

Ni-catalyzed enantioselective reductive diarylation enables the synthesis of all-carbon quaternary centers with high enantioselectivity (up to 99% ee) under mild conditions and a broad substrate scope. No preprepared organometallic reagents are required.

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

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Conventional and pure shift HSQC experiments are compared, demonstrating the advantages of pure shift acquisition in homonuclear decoupling for improved spectral quality.

HSQC experiments are compared, illustrating the advantages of pure shift acquisition in homonuclear decoupling for improved spectral quality.
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

T. Mathew* L. Gurung S. Roshandel S. B. Munoz G. K. S. Prakash*
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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

\[
\begin{align*}
R^1 &\quad R^2 &\quad R^3 &\quad R^4 \\
\text{CHO} &\quad \text{Me}_3\text{SiN}_3 &\quad \text{PPPh}_3 &\quad \text{CS}_2, \text{toluene} \\
\text{MeOH} &\quad \text{r.t.} &\quad 12-24 \text{ h} &\quad 65-95\% \text{ yields} \\
\end{align*}
\]

R1 = H, Me, Cl
R2 = aryl, alkyl
R3 = alkyl
17 examples

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

1,2-N,N-bisnucleophiles
60-80% yield
16 examples
R = alkyl, aryl, hetaryl
R1 = CN, CO2H

1,2-N,O-bisnucleophiles
33-42% yield
36 examples

1,3-N–C–N-bisnucleophiles
60-70% yield
26 examples

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

R1 = X, Me, i-Pr
R2 = Me, Et, i-Pr, Bn, etc.
R3 = H, Me, Bn
R4 = H, Me

5% mmol eosin Y
1 equiv Cs2CO3
26 W lightbulb
DMA, N2, 16 h

no transition metal
26 examples
up to 88% yield
Enantioselective Arylation of 3-Carboxamide Oxindoles with Quinone Monoimines and Synthesis of Chiral Spirooxindole-Benzofuranones

H. Chen
H. Liu
S.-H. Zhao
S.-B. Cheng
X.-Y. Xu
W.-C. Yuan
X.-M. Zhang*
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Palladium-Catalyzed Regioselective Heck–Suzuki–Miyaura Cascade Cyclization for the Synthesis of Trisubstituted Arylideneisoquinolinones

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R. Mirzazadeh
B. Larijani
P. Rashidi Ranjbar*
R. Rahimi
M. Mahdavi*
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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*
Anhui Agricultural University, P. R. of China
The Hudrlik–Peterson Reaction of Secondary cis-TMS-Epoxy Alcohols and its Application to the Synthesis of the Fatty Acid Intermediates

S. Saito
Y. Nanba
M. Morita
Y. Kobayashi*
Tokyo Institute of Technology, Japan

OH
TMS
OTBS
H
OTBS
OH
OH
OH
TMS

via Wittig

Protectin D1 intermediate
Maresin 1 intermediate

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

S. Guo
K. Jie
L. Huang
Z. Zhang
Y. Wang
Z. Fu
H. Cai*
Nanchang University, P. R. of China

Ar
O
N
R'

up to 95% yield, 25 examples
commercially available and cheap catalyst

Highly Regioselective Phosphine-Promoted [2+2+2] Annulations of Cyanoacetylenes and N-Tosylimines to 1,2-Dihydropyridine-3,5-dicarbonitrile Derivatives

J. Zhang
Q. Zhang
X. Ji
L.-G. Meng*
Huaibei Normal University, P. R. of China

R' = aryl
R'' = CN

high regioselectivity

26 examples
yields up to 82%
not found
Triphenylphosphine Oxide-Catalyzed Selective α,β-Reduction of Conjugated Polyunsaturated Ketones

X. Xia
Z. Lao
P. H. Toy*

The University of Hong Kong, P. R. of China