Chemical Diversity of Volatile Macroyclic Lactones from Frogs

S. Schulz, D. Poth, P. S. Peram, S. Hötling, M. Menke, K. Melnik, R. Röpke
Rhodium-Catalyzed Direct Allylation of Simple Arenes by Using Gem-Difluorinated Cyclopropanes as Allyl Surrogates

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Rhodium-Catalyzed Direct Allylation of Simple Arenes by Using Gem-Difluorinated Cyclopropanes as Allyl Surrogates

C–H Activation
C–C Activation
mild conditions

[Rh]

Directing-group-free
Good regioselectivity
No base and stoichiometric metal salt
Gram-scale reaction with TON up to 1700
50 examples up to 97% yield

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Technische Universität Braunschweig, Germany

Chemical Diversity of Volatile Macroyclic Lactones from Frogs

ring-closing metathesis epoxide opening

straight branched terpene

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Main Group Supramolecular Chemistry Led to Surprising New Directions in the Self-Assembly of Organic Macrocycles, Cages, and Cyclophanes

T. A. Shear
D. W. Johnson*
University of Oregon, USA

- 8 examples
- Mild conditions
- Dimer to hexamer macrocycles formed
- Targeted macrocycle synthesis using ‘Design of Experiments’

A Simple, Readily Accessible, and Effective Apparatus for the Photoisomerization of cis-Cyclooctenes to trans-Cyclooctenes

T. C. Pickel*
N. E. Genung
K. M. Guckian
X. Shi
Biogen, USA

A Convenient Approach to meso-Uracil–4,4-Difluoro-4-bora-3a, 4a-diaza-s-indacene Derivatives

M. Trapani
M. A. Castriciano
J. A. A. W. Elemans
A. Nicosia
P. Mineo
M. Cordaro*
University of Messina, Italy
Efficient Synthesis of Polysubstituted 1,5-Benzodiazepinone Dipeptide Mimetics via an Ugi-4CR-Ullmann Condensation Sequence

R. Van Den Hauwe
M. Elsocht
C. Hollanders
S. Ballet*
Vrije Universiteit Brussel, Belgium

1) MeOH, rt
2) TFA/CH2Cl2, rt
3) CuI, Cs2CO3, DMF (anhyd), Ar, rt

10 examples
26–67% yield over 3 steps

Revisiting the Heck Reaction for Fluorous Materials Applications

K. Yoshinaga
T. M. Swager*
Massachusetts Institute of Technology, USA

Heck Reaction

Ar-Br

\( \rightleftharpoons \) CnF2n+1

• Expanded Scope, Improved Yields
• Further Derivatization with Thiophenes
• Facile Access to Fluorous Materials

PEG-Supported Hypervalent Iodine Reagent for Sulfonamide Synthesis

J. Macara
D. L. Poeira
J. A. S. Coelho
M. M. B. Marques*
Universidade Nova de Lisboa, Portugal

1) ArSO4Na
2) R1R2NH

4 examples
up to 95%

Ar = phenyl, 4-tolyl
R1R2NH = morpholine, piperidine, diethylamine

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Synthesis and Biological Activity of 2-(2-Amino-2-phenylethyl)-5-oxotetrahydrofuran-2-carboxylic Acid: A Microwave-Assisted 1,3-Dipolar Cycloaddition Approach

A. Urquilla  D. C. Merrer  R. Sumner  R. W. Denton*
Medgar Evers College-CUNY, USA

Asymmetric Synthesis of 3-Phenyl-2,3-dihydro-1H-pyrrolo[3,2-b]-pyridine-3-carbonitriles Catalyzed by Phase-Transfer Catalyst Derived from tert-Leucine

Z. Zhao  J. Wang  Z. Wei  J. Cao  D. Liang  H. Duan*  Y. Lin*
Jilin University, P. R. of China

Diastereoselective Synthesis of (3R,5R)-γ-Hydroxypiperazic Acid

T. A. Gerrein  Y. M. Elbatrawi  J. R. Del Valle*
University of Notre Dame, USA
**One-Pot Synthesis of Cyclic Isothioureas**

J. Wang  
Z. Sun*  
Shanghai University of Engineering Science, P. R. of China

1) AIBN, NCS  
2) m = 0, 1, 2  
DCE, 60 °C

10 examples  
up to 90% isolated yield

Product ring system diversity  
Retention of chirality  
High efficiency of synthesis  
Up to 5 g scale

**Cu-Catalyzed C–H Activation Reaction: One-Pot Direct Synthesis of Xanthine and Uric Acid Derivatives from 5-Bromouracil**

S. Hazra  
B. Mondal  
B. Roy*  
H. Rahaman*  
University of Kalyani, India  
Ranaghat College, India

1) CuBr₂ (20 mol%)  
DMEDA (20 mol%)  
toluene, 110 °C

36–40 h

xanthine derivatives  
7 examples

**Ni-Catalyzed Reductive Carbonylation of Alkyl Halides to Form Dialkyl Ketones Using Diphenyl Oxalate as CO Surrogate**

Y. Sun  
L. Su  
W. Tong  
K. Yao*  
H. Gong*  
Shanghai University, P. R. of China

R¹, R² = aryl and alkyl  
up to 85% yield  
16 examples

X = Br and OTs  
new CO surrogate
Iron-Catalyzed C(sp³)–H Alkylation through Ligand-to-Metal Charge Transfer

Y. C. Kang
S. M. Treacy
T. Rovis*
Columbia University, USA

20 examples
24–81% yield

(NH₄)₂S₂O₈-Promoted Direct C–C Coupling of Indoles with Quinones/Hydroquinones without Catalyst

Y. Dong*
J.-X. Ye
Q.-Q. Luo
T. Mei
A. Shen
P. Huang
J. Chen
X. Zhang
C. Xie
Z.-C. Shi
Chengdu Normal University, P. R. of China

Metal-free
Catalyst-free
Up to 93% yield