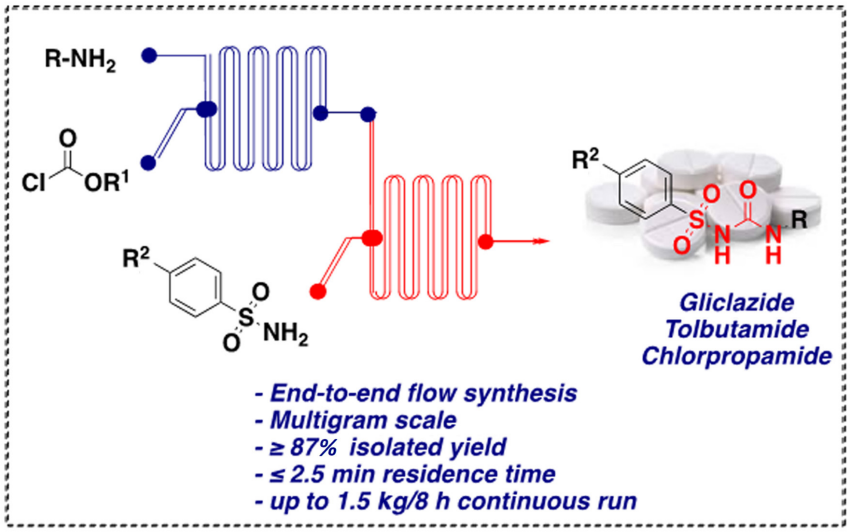
Synthesis

Reviews and Full Papers in Chemical Synthesis

March 2, 2022 • Vol. 54, 1157–1460



Rapid Multigram-Scale End-to-End Continuous-Flow Synthesis of Sulfonylurea Antidiabetes Drugs: Gliclazide, Chlorpropamide, and Tolbutamide

C. R. Sagandira, P. Watts

5

Thieme

Synthesis

Reviews and Full Papers in Chemical Synthesis

2022
Vol. 54, No. 5
March I

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Cover Image: C. R. Sagandira, P. Watts

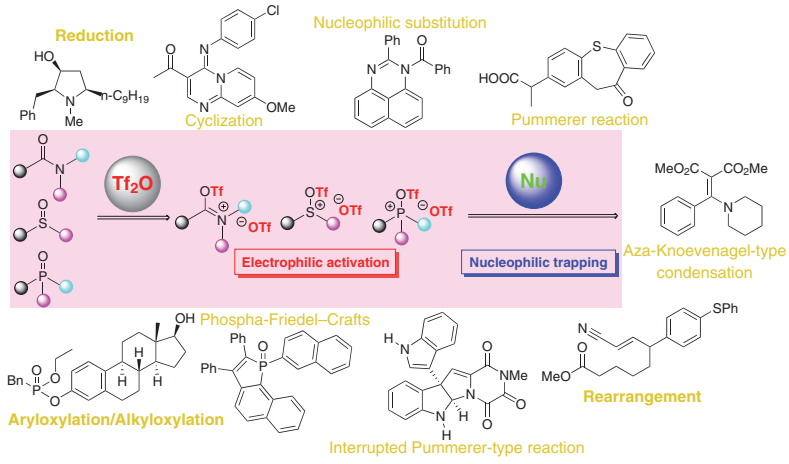
Synthesis

Synthesis **2022**, *54*, 1157–1202
DOI: 10.1055/a-1679-8205

H. Huang
J. Y. Kang*
University of Nevada Las Vegas, USA

Triflic Anhydride (Tf_2O)-Activated Transformations of Amides, Sulfoxides and Phosphorus Oxides via Nucleophilic Trapping

Review



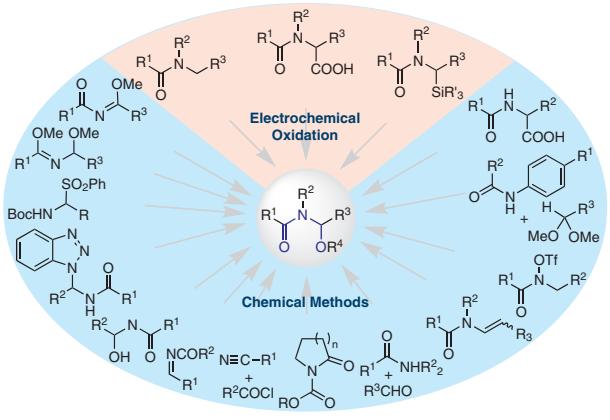
Synthesis

Synthesis **2022**, *54*, 1203–1216
DOI: 10.1055/a-1684-0772

X.-Y. Ma*
F.-Q. Shao
X. Hu
X. Liu
Sichuan University of Science & Engineering, P. R. of China

Progress in the Synthesis of *N*-Acyl-*N*,*O*-acetals

Short Review



Synthesis

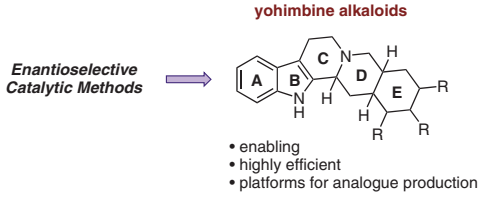
Enantioselective Syntheses of Yohimbine Alkaloids: Proving Grounds for New Catalytic Transformations

Short Review

1217

Synthesis **2022**, *54*, 1217–1230
DOI: 10.1055/a-1684-2942

E. R. Miller
K. A. Scheidt*
Northwestern University, USA



Synthesis

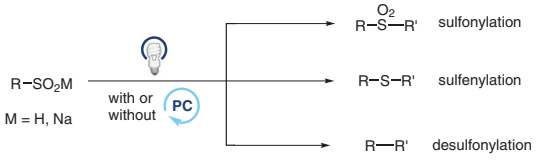
Organic Sulfinic Acids and Salts in Visible Light-Induced Reactions

Short Review

1231

Synthesis **2022**, *54*, 1231–1249
DOI: 10.1055/a-1671-0085

Z. Lu
M. Shang
H. Lu*
Nanjing University, P. R. of China



Synthesis

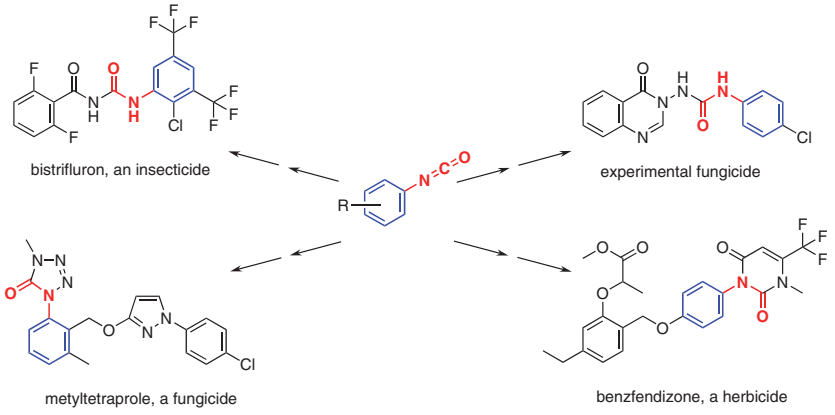
Organic Isocyanates and Isothiocyanates: Versatile Intermediates in Agrochemistry

Short Review

1250

Synthesis **2022**, *54*, 1250–1260
DOI: 10.1055/a-1678-8528

C. Lamberth*
Syngenta Crop Protection AG, Switzerland



Synthesis

Hypervalent Bromine(III) Compounds: Synthesis, Applications, Prospects

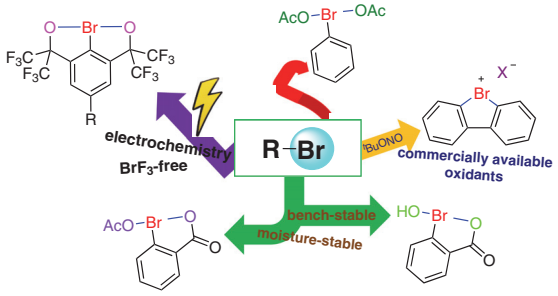
Short Review

OPEN ACCESS

1261

Synthesis **2022**, *54*, 1261–1271
DOI: 10.1055/a-1675-8404

B. Winterson
T. Patra
T. Wirth*
Cardiff University, UK



Synthesis

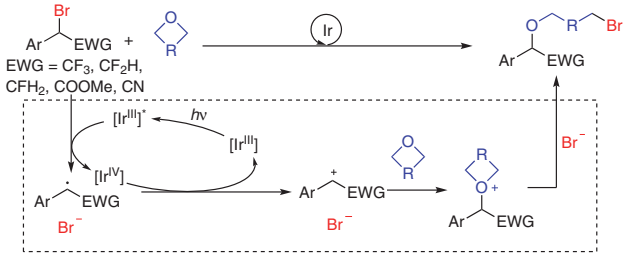
Photoredox-Catalyzed Ring-Opening Addition Reaction between Benzyl Bromides and Cyclic Ethers

Feature

1272

Synthesis **2022**, *54*, 1272–1286
DOI: 10.1055/a-1671-6856

C. Kuang
C. Ni
Y. Gu
J. Hu*
Shanghai Institute of Organic Chemistry, P. R. of China



Synthesis

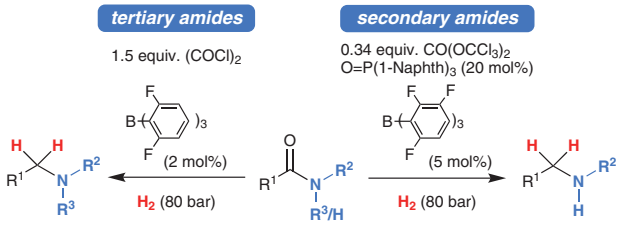
Towards the Development of Frustrated Lewis Pair (FLP) Catalyzed Hydrogenations of Tertiary and Secondary Carboxylic Amides

Feature

1287

Synthesis **2022**, *54*, 1287–1300
DOI: 10.1055/a-1681-3972

L. Köring
N. A. Sitte
J. Paradies*
Paderborn University, Germany



- *halides as active Lewis base in FLP-type H_2 activation*
- *phosphorus(V) catalysis*

Synthesis

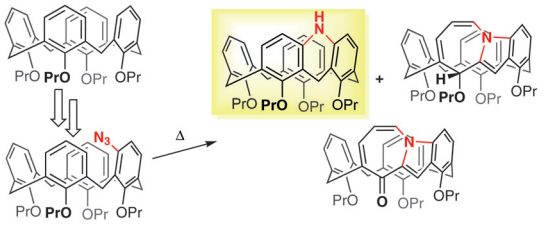
Synthesis **2022**, *54*, 1301–1308
DOI: 10.1055/a-1668-9694

M. Tlustý
V. Eigner
P. Lhoták*

University of Chemistry and Technology, Prague, Czech Republic

Azide Decomposition as a Pathway to Intramolecularly Upper-Rim-Bridged Calix[4]arenes

Feature



Synthesis

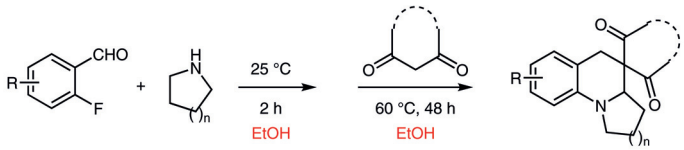
Synthesis **2022**, *54*, 1309–1320
DOI: 10.1055/s-0040-1720890

L. Yu
B. Qiu
P. Dong
J. Xiao*
S. Yu*

Qingdao University of Science and Technology, P. R. of China
Qingdao Agricultural University, P. R. of China

Facile Synthesis of Spirocyclic Tetrahydroquinolines via C(sp^3)–H Functionalization in a Cascade Redox Process

Paper



- **High step- and atom-economy**
- **Using renewable EtOH as a solvent**
- ***In situ* installation of hydride donor and acceptor**
- **Catalyst-free at room temperature**

Synthesis

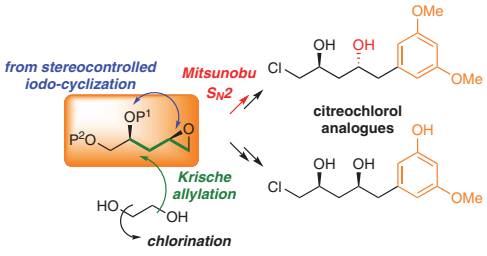
Synthesis **2022**, *54*, 1321–1328
DOI: 10.1055/a-1669-0463

C.-K. Lin*
B.-H. Hsieh
C.-F. Wu

National Chung Hsing University, Taiwan

Total Synthesis of Citreochlorol Monochloro Analogues via a Catalytically Enantioselective Carbonyl Allylation

Paper



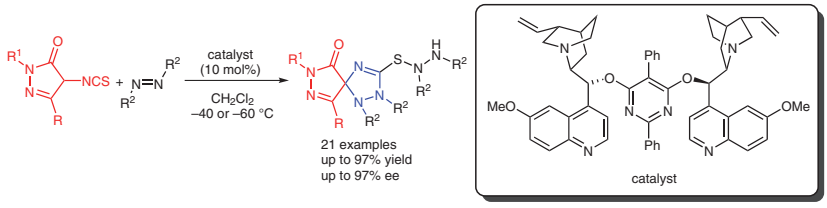
Synthesis

Enantioselective Construction of Multi-Nitrogen-Containing Spirocycles: Asymmetric [3+2] Annulation of 4-Isothiocyanato-pyrazolones with Azodicarboxylates

Synthesis **2022**, *54*, 1329–1338
DOI: 10.1055/a-1672-5707

S. Wei
W. Wang
A. Xue
S. Nawaz
J. Qu
B. Wang*

Dalian University of Technology, P. R. of China



- 4-Isothioyanatopyrazolones as effcient synthons for synthesis of triazolines
- Excellent stereocontrol
- High efficiency
- Wide substrate scope

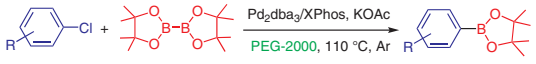
Synthesis

Recyclable Pd_2dba_3/XPhos/PEG-2000 System for Efficient Borylation of Aryl Chlorides: Practical Access to Aryl Boronates

Synthesis **2022**, *54*, 1339–1346
DOI: 10.1055/s-0037-1610787

M. Cai*
C. Luo
C. Xu
B. Huang*

Jiangxi Normal University, P. R. of China



Broad substrate scope
Good to excellent yields
High FG compatibility
Recyclable catalytic system

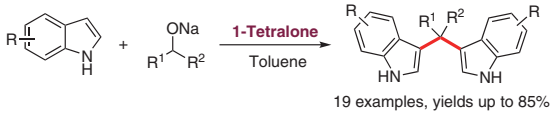
Synthesis

Synthesis of Bis(indolyl)methanes through an Alkylation Reaction of Indoles with Sodium Alkoxides

Synthesis **2022**, *54*, 1347–1352
DOI: 10.1055/a-1668-9910

X. Chen
Y. Liu
H. Jin
B. Zhou*

Zhejiang University of Technology, P. R. of China



√ Transition-metal-free
√ Easy operation
√ Readily available substrates
√ Gram-scale synthesis

Synthesis

Synthesis **2022**, *54*, 1353–1364
DOI: 10.1055/a-1674-6564

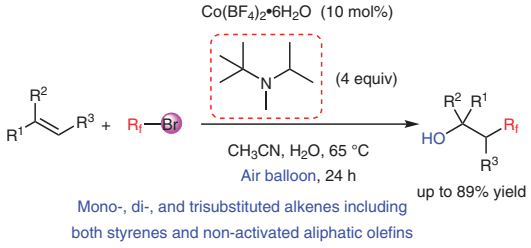
Q. Sun
L. Pang
S. Mao
W. Fan*
Y. Zhou
J. Xu
S. Li*
Q. Li*

Anhui Agricultural University, P. R. of China
Zhengzhou Tobacco Research Institute of CNTC, P. R. of China
Sun Yat-Sen University, P. R. of China
South China University of Technology, P. R. of China

Cobalt-Catalyzed Hydroxyperfluoroalkylation of Alkenes with Perfluoroalkyl Bromides and Atmospheric Oxygen

Paper

1353



Synthesis

Synthesis **2022**, *54*, 1365–1374
DOI: 10.1055/a-1664-2282

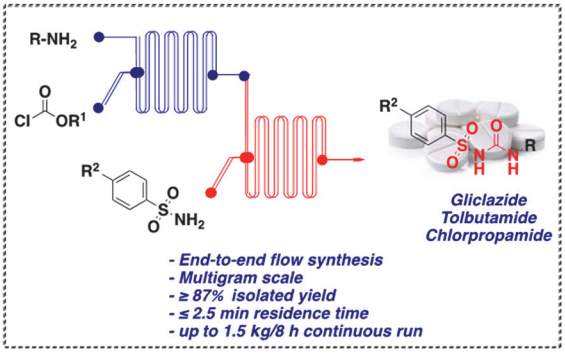
C. R. Sagandira
P. Watts*

Nelson Mandela University, South Africa

Rapid Multigram-Scale End-to-End Continuous-Flow Synthesis of Sulfonylurea Antidiabetes Drugs: Gliclazide, Chlorpropamide, and Tolbutamide

Paper

1365



Synthesis

Synthesis **2022**, *54*, 1375–1387
DOI: 10.1055/s-0041-1737291

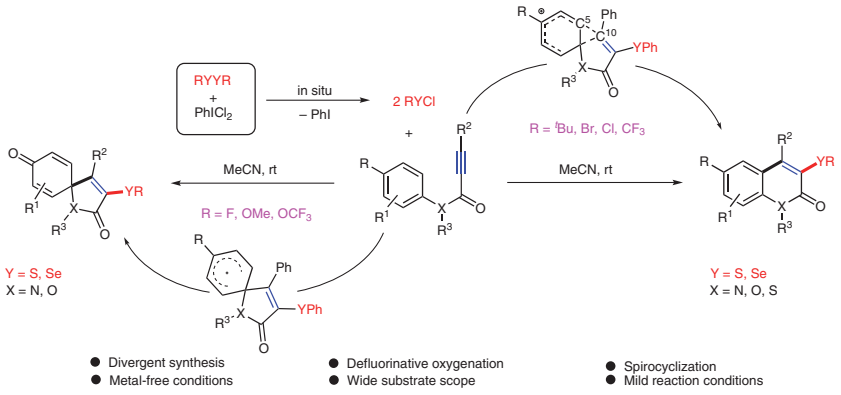
X. Li
B. Zhang
Z. Yu
D. Zhang
H. Shi
L. Xu
Y. Du*

Tianjin University, P. R. of China

Divergent Synthesis of Chalcogenylated Quinolin-2-ones and Spiro[4,5]trienones via Intramolecular Cyclization of *N*-Arylpropynamides Mediated by Diselenides/Disulfides and $PhICl_2$

Paper

1375



Synthesis

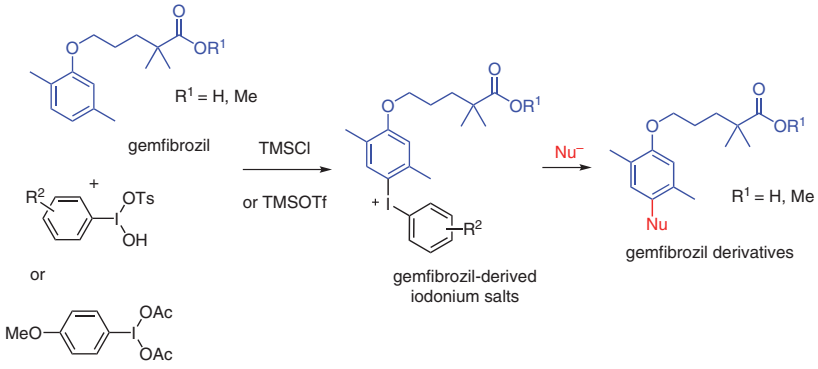
Synthesis **2022**, *54*, 1388–1394
DOI: 10.1055/a-1679-7753

J. Zhou
Z. Bao
P. Wu*
C. Chen*

Wuyi University, P. R. of China
International Healthcare Innovation Institute (Jiangmen), P. R. of China
Tsinghua University, P. R. of China
Nankai University, P. R. of China

The Preparation and Application of Diaryliodonium Salts Derived from Gemfibrozil and Gemfibrozil Methyl Ester

Paper



Synthesis

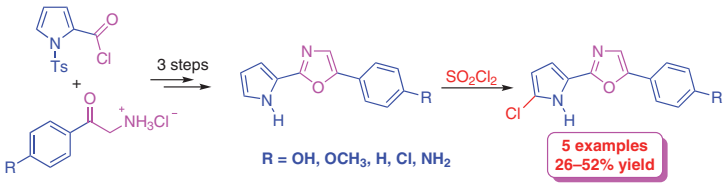
Synthesis **2022**, *54*, 1395–1403
DOI: 10.1055/a-1655-6078

I. W. Muderawan*
W. A. Loughlin
D. J. Young*

Ganesha University of Education, Indonesia
Charles Darwin University, Australia

Synthesis of a New Phorbazole and Its Derivatives

Paper



Synthesis

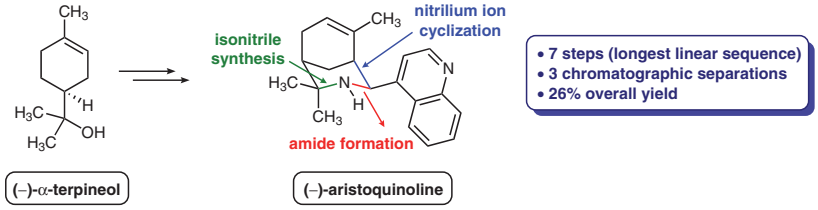
Synthesis **2022**, *54*, 1404–1412
DOI: 10.1055/s-0041-1737276

P. D. Gujarati
K. P. Reber*

Towson University, USA

Total Synthesis of (–)-Aristoquinoline via an Intramolecular Nitrilium Ion Cyclization

Paper

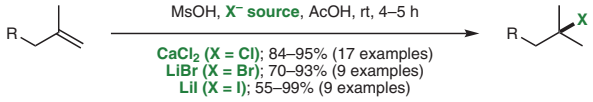


Synthesis

Synthesis **2022**, *54*, 1413–1421
DOI: 10.1055/s-0040-1719856

X. Bertrand
P. Paquin
L. Chabaud
J.-F. Paquin*
Université Laval, Canada

Hydrohalogenation of Unactivated Alkenes Using a Methanesulfonic Acid/Halide Salt Combination



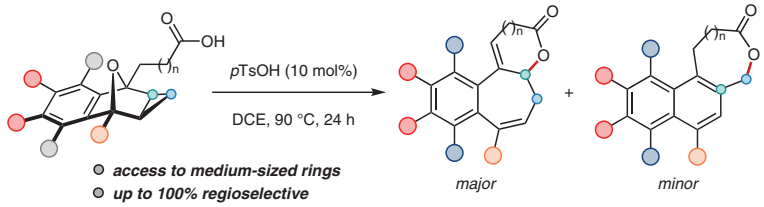
- Mild conditions
- Readily available solid reagents
- No additional purification generally required

Synthesis

Synthesis **2022**, *54*, 1422–1430
DOI: 10.1055/a-1672-2260

A. Ho
A. Pounder
S. Koh
M. P. Macleod
E. Carlson
W. Tam*
University of Guelph, Canada

Acid-Catalyzed Intramolecular Ring-Opening Reactions of Cyclopropanated Oxabenzonorbornadienes with Carboxylic Acid Nucleophiles



- *access to medium-sized rings*
- *up to 100% regioselective*
- *transition-metal-free*
- *open to air*

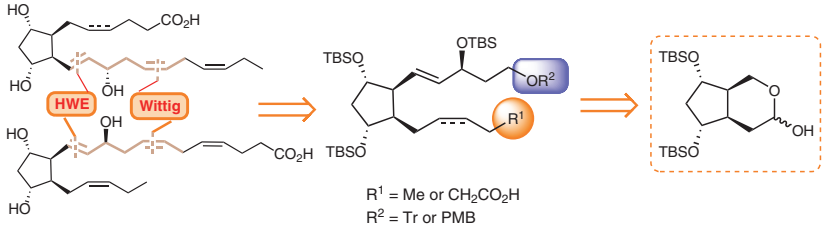
9 examples
up to 73% yield

Synthesis

Synthesis **2022**, *54*, 1431–1445
DOI: 10.1055/a-1654-4111

A. Guy
J. Merad
T. Degrange
G. Reversat
V. Bultel-Poncé
T. Durand
J.-M. Galano
C. Oger*
Univ. Montpellier, France

Total Synthesis of DHA and DPA_{n-3} Non-Enzymatic Oxylipins



R^1 = Me or CH_2CO_2H
R^2 = Tr or PMB

Synthesis

Synthesis **2022**, *54*, 1446–1460
DOI: 10.1055/a-1649-5460

M. Tryniszewski
M. Barbasiewicz*
University of Warsaw, Poland

Gram-Scale Preparation of Acyl Fluorides and Their Reactions with Hindered Nucleophiles