JOC Year in Review: 1991

Artiom Cernijenko

Journal of Organic Chemistry 1991 Statistics:

1571 Papers in Total

Top 3 Most Cited Papers:

1) Kazlauskas R. J., Weissfloach, A. N. E., Rapport A. T.
A Rule to Predict Which Enantiomer of a Secondary Alcohol Reacts Faster in Reactions Catalyzed by Cholesterol Esterase, Lipase from Pseudomonas Cepacia, and Lipase from Candida Rugosa.

Cited 665 times.

2) Jaime C., Demendoza J., Prados P., Nieto P. M., Sanchez C.,
ChemInform Abstract: ^{13}C NMR Chemical Shifts. A Single Rule to Determine the Conformation of Calix(4)arenes.

Cited 481 times

3) Zhang E., Jacobsen E. N.
Asymmetric Olefin Epoxidation with Sodium Hypochlorite Catalyzed by Easily Prepared Chiral Mn(III) Salen Complexes**.**

Cited 433 times.

Notable Events of 1991:

Collapse of Soviet Union. Re-Establishment of Lithuania's Independance.

Phil S. Baran Goes to High School.

Gulf War Begins.

Richard R. Ernst Receives Nobel Prize in Chemistry "*for his contributions to the development of the methodology of high resolution nuclear magnetic resonance (NMR) spectroscopy*"

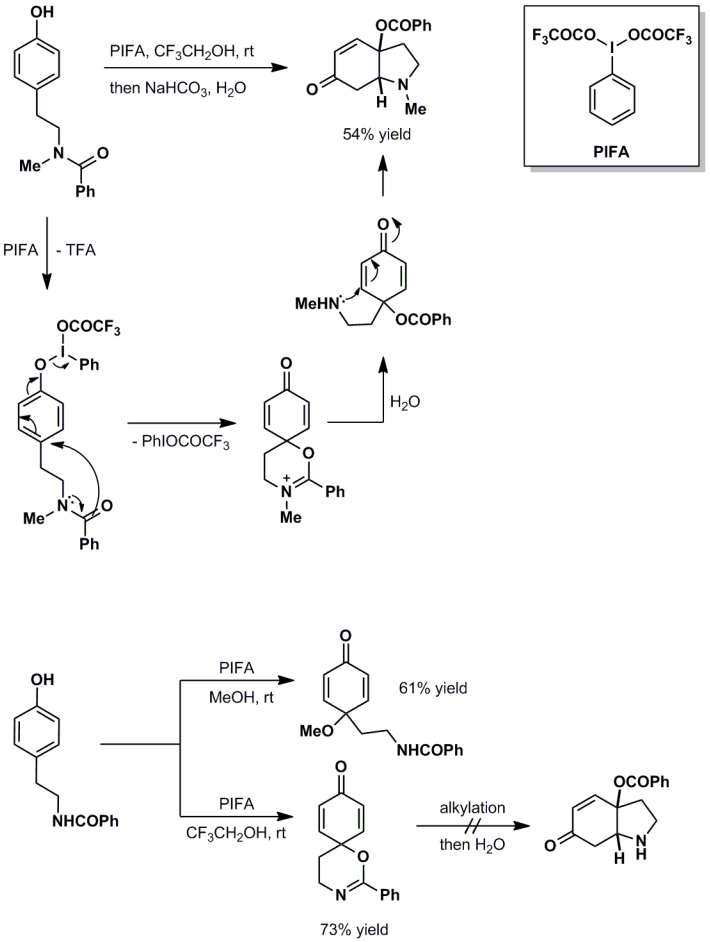
Start of Balkan War

Freddie Mercury Dies.

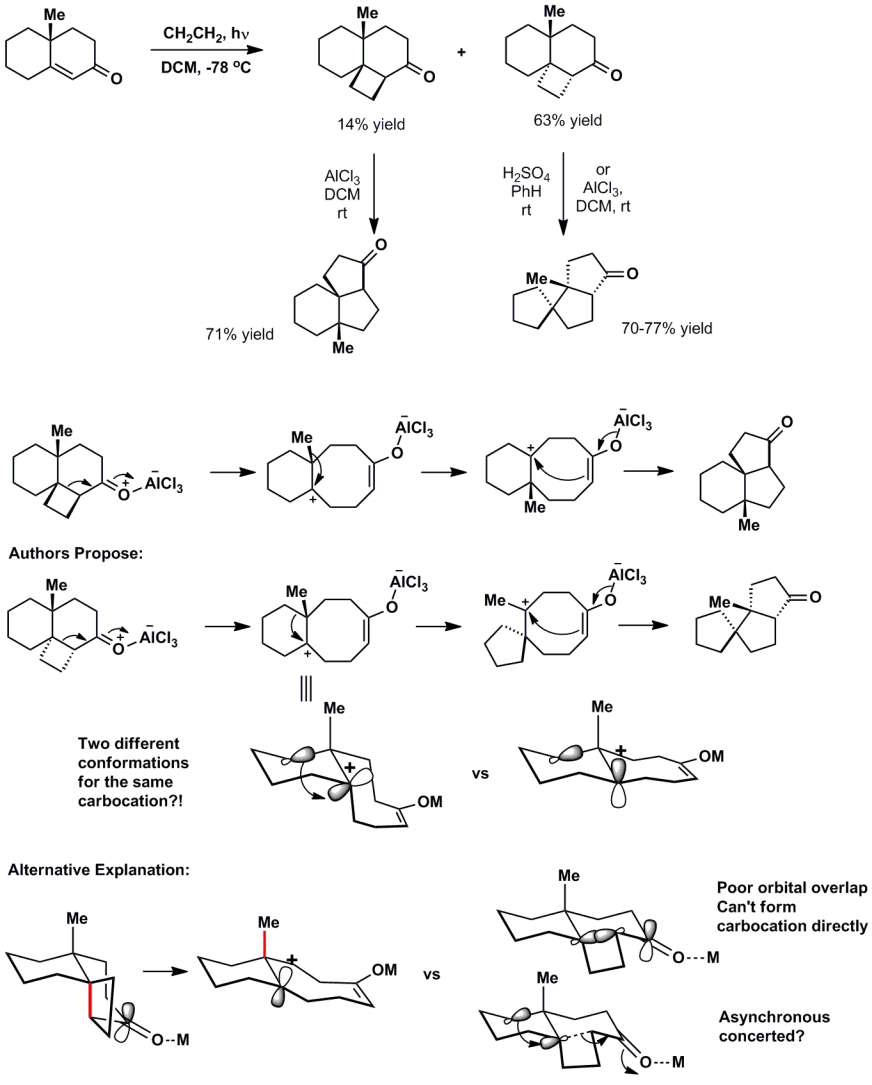
The #1 single of the year "How Am I Supposed to Live Without You" by Michael Bolton

JOC The Journal of Organic Chemistry

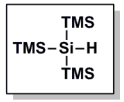
Hypervalent Iodine Oxidation of *N*-Acyltyramines: Synthesis of Quinol Ethers, Spirohexadienones, and Hexahydroindol-6-ones
Kita Y., Tohma H., Kikuchi K., Inagaki M. and Yakura T., 435-438



Novel Rearrangement of 8-Methyltricyclo[6.4.0.0^{1,4}]dodecan-5-ones to Angularly Fused and Spiro-Annulated Tricyclic Ketones
Kakiuchi K., Ohnishi Y., Kobiro K., Tobe Y. and Odaira Y., 463-466

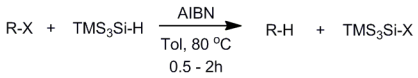


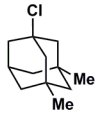
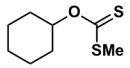
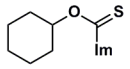
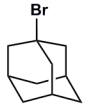
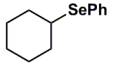
Tris(trimethylsilyl)silane as a Radical-Based Reducing Agent in Synthesis
Clark K.B., Griller D., Giese B., Kopping B., Ballestri M., Chatgilialoglu C., 678-683

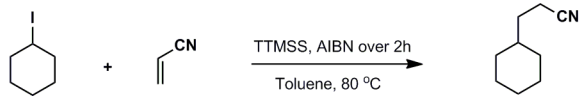


TTMSS - ecological and much less toxic alternative to Bu_3SnH

Bond strengths: Bu_3Sn-H 74 kcal/mol, Et_3Si-H 90 kcal/mol, TMS_3Si-H 79 kcal/mol)



R-X	Yield of R-H	R-X	Yield of R-H
$CH_3(CH_2)_{14}CH_2Cl$	68%	$CH_3(CH_2)_{14}CH_2I$	98%
	82%		97%
	93%		86%
			95%
$CH_3(CH_2)_{14}CH_2Br$	96%		
	96%		95%
	93%	$CH_3(CH_2)_{14}CH_2NC$	85%
			99%

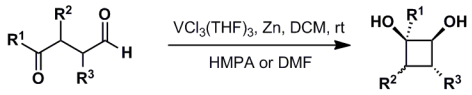


90% yield

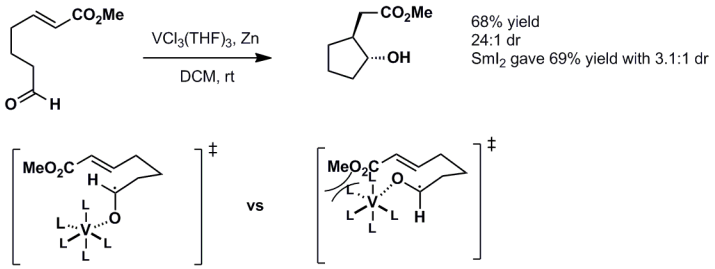
Synthesis of cis-1,2-Cyclobutanediols via Intramolecular Pinacol Coupling of 4-Oxo Aldehydes
Raw A. S. and Pedersen S. F., 830-833

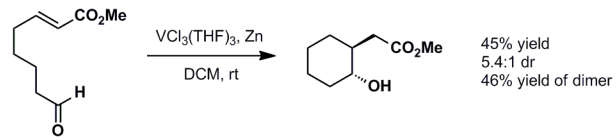
Vanadium(II)-Promoted Cyclization of 5,6-Enals or 5,6-Ynals. A Stereoselective Approach to *trans*-2-Alkyl- or *trans*-2-Alkylidenecyclopentanols
Tsutomu Inokuchi, Hiroyuki Kawafuchi, Sigeru Torii, 4983–4985

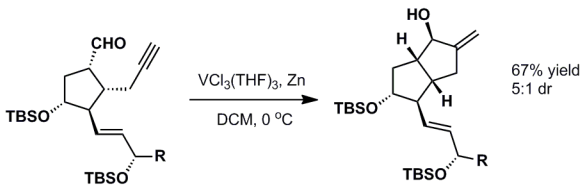
$[V_2Cl_3(THF)_6]_2[Zn_2Cl_6]$ is a one-electron reducing agent similar to SmI_2



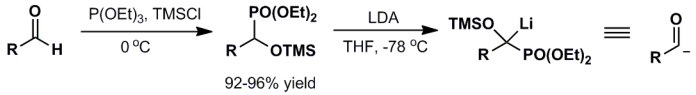
72-87% yield
single diastereoisomer if R^2=H
2:1 dr if R^2= alkyl



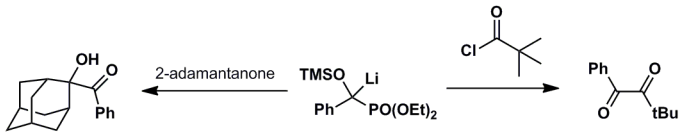




Synthetic methods and reactions. Preparation of 1,2-diketones from nonenolizable aliphatic and aromatic acyl chlorides with diethyl 1-alkyl(aryl)-1-(trimethylsiloxy)-methanephosphonates
Wu A. H. and Olah G. A., 902-904



92-96% yield

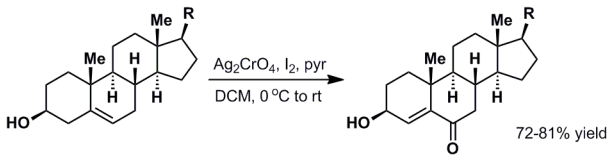


82% yield

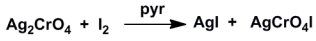
74% yield

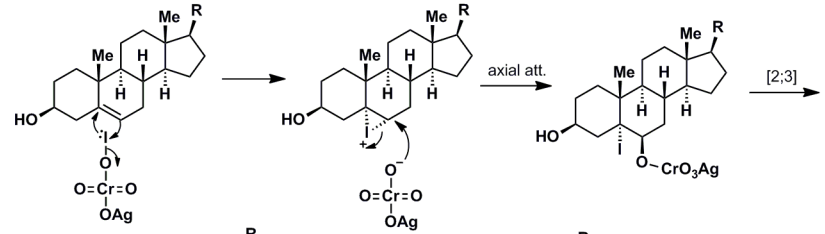
Rather mild acyl anion equivalents. Will not react with esters.

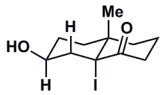
A convenient method for the synthesis of 3-β-hydroxy 4-en-6-one steroids
Shamsuzzaman, Ahmad S., Khan B. Z. and Shafiullah, 1936-1937



72-81% yield

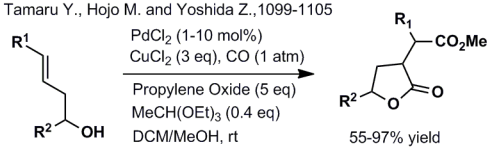






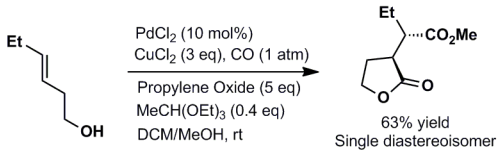
Author's propose OH---I bonding that facilitates elimination. However, OH and I are not properly aligned

Palladium(II)-Catalyzed Carbonylation of 3-Buten-1-ols and 3-Butyn-1-ols: an Efficient Synthesis of γ-Butyrolactones
Tamaru Y., Hojo M. and Yoshida Z.,1099-1105



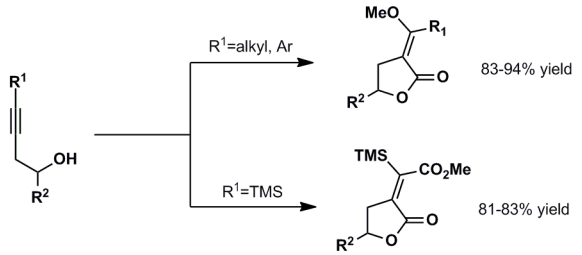
55-97% yield

Propylene oxide is used to scavenge HCl
Orthoester as a drying agent



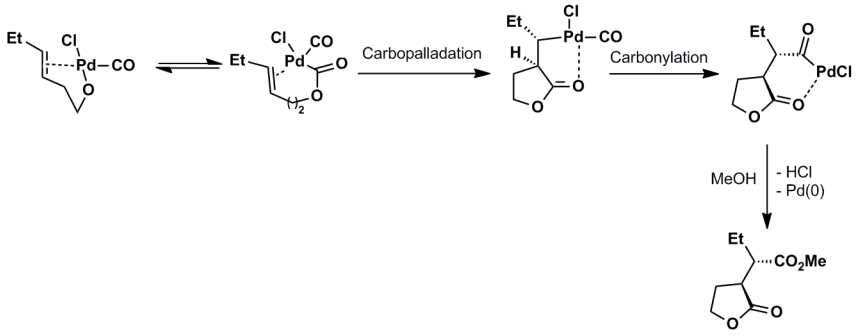
63% yield
Single diastereoisomer

Mechanism?

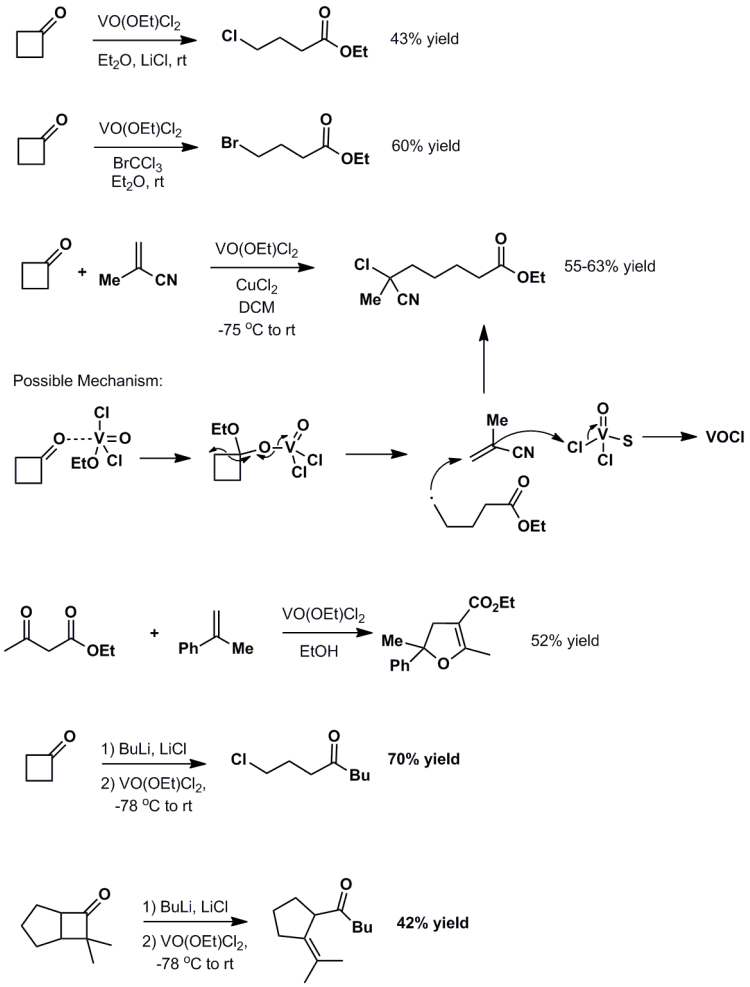


83-94% yield

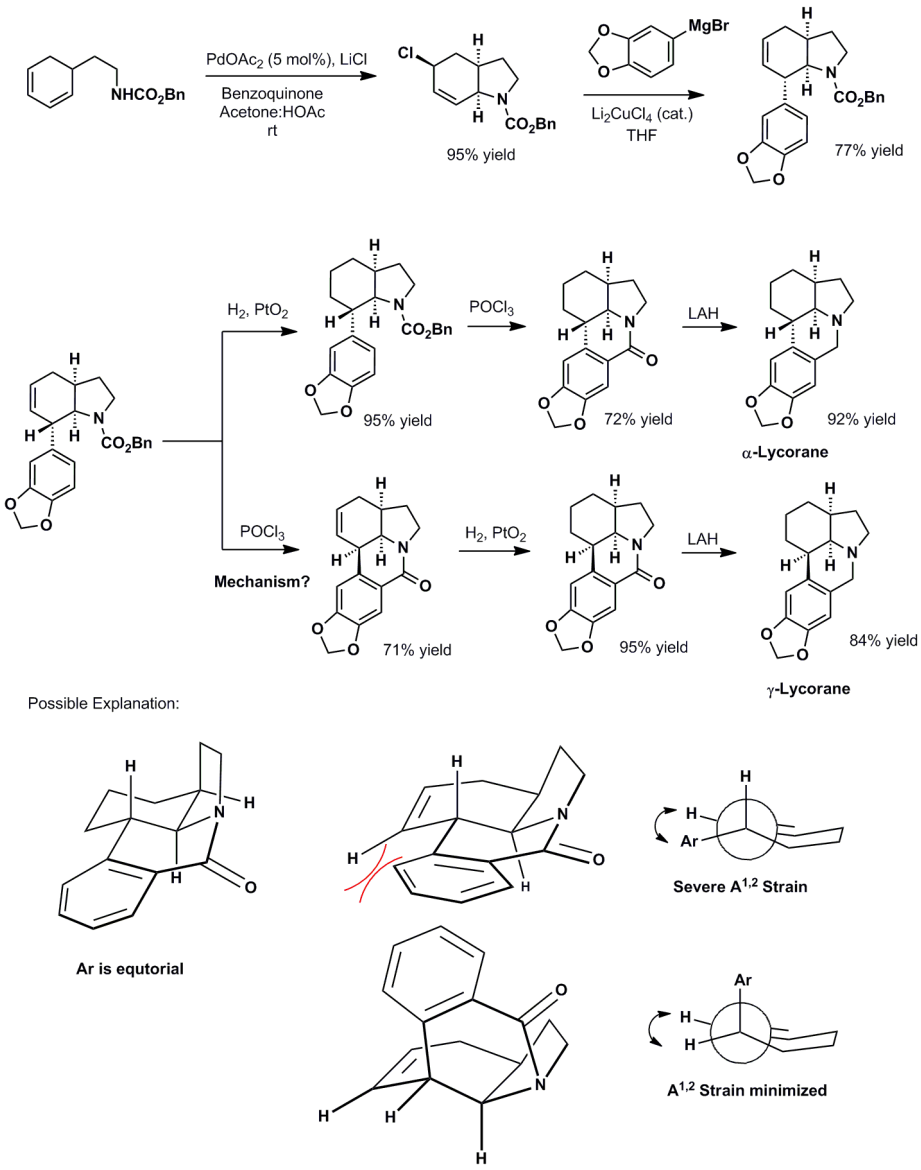
81-83% yield



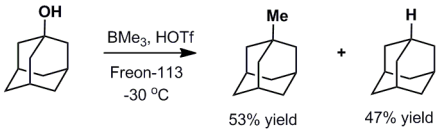
Oxovanadium(V)-Induced Oxidative Transformations of Cyclobutanones
Hirao T., Fujii T., Miyata S. and Ohshiro Y., 2264–2266



Synthesis of (+/-)-α- and (+/-)-γ-Lycorane via a Stereocontrolled Organopalladium Route
Baeckvall J. E., Andersson P. G., Stone G. B. and Adolf Gogoll A., 2988–2993



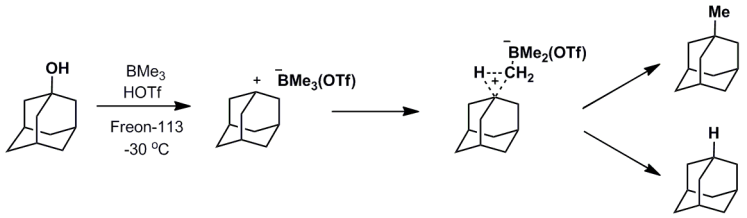
Reductive Alkylation and Reduction of Tertiary, Secondary, and Benzylic Alcohols withTrimethyl-(Triethyl-, and Triisopropyl)boron/Trifluoromethanesulfonic Acid
Wu A. H., Farooq O. and Olah G. A., 2759–2761



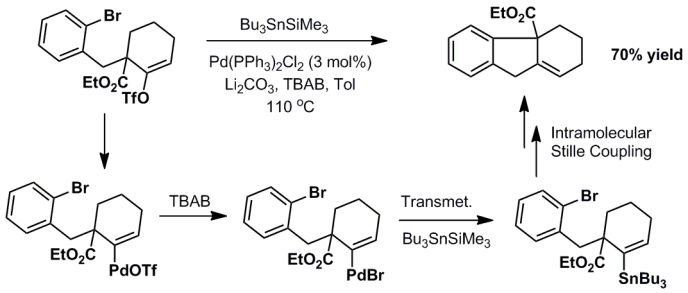
Me_3COH, $PhCH_2OH$, Ph_2CHOH and Ph_3COH gave almost identical results

BEt_3/HOTf gave around 10% yield of R'-Et and 90% R'-H for the same substrates under identical conditions

$B(iPr)_3$/HOTf gave only traces (~0.1% yield) of R'-*i*Pr and almost exclusively R'-H



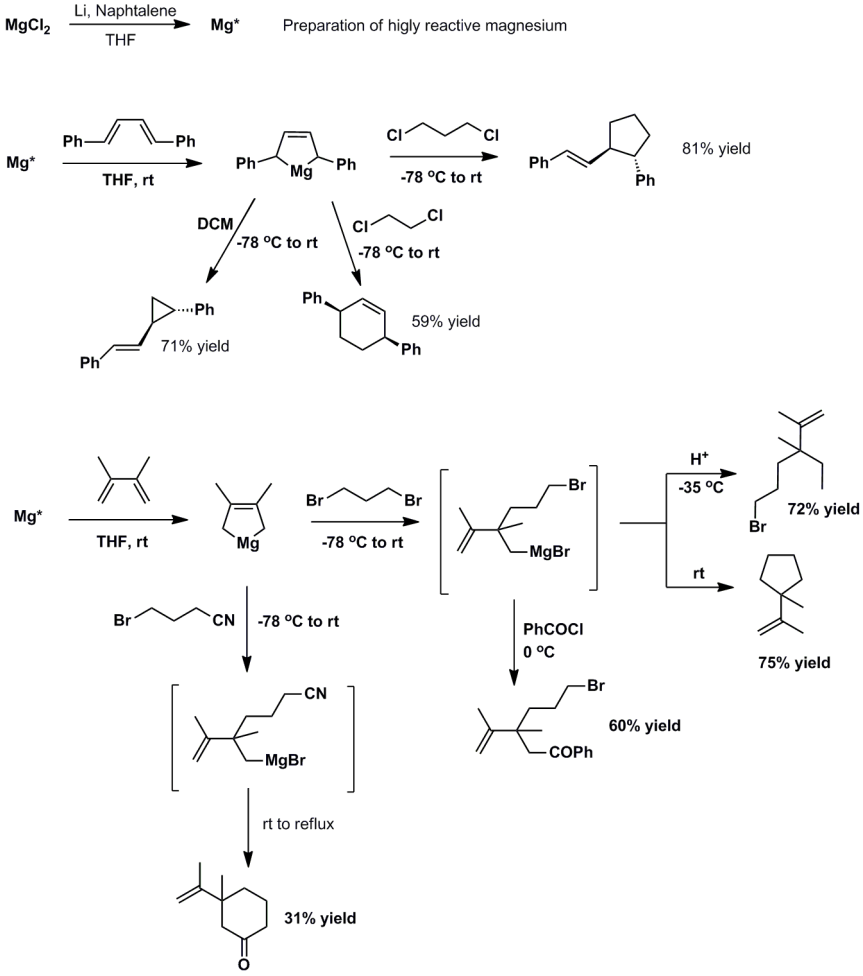
The Use of Silyltriorganostannanes, $R_3SiSnR'_3$, in Organic Synthesis. A Novel Palladium-Catalyzed TandemTransmetalation-Cyclization Reaction
Mori M., Kaneta N., Shibasaki M., 3486–3493



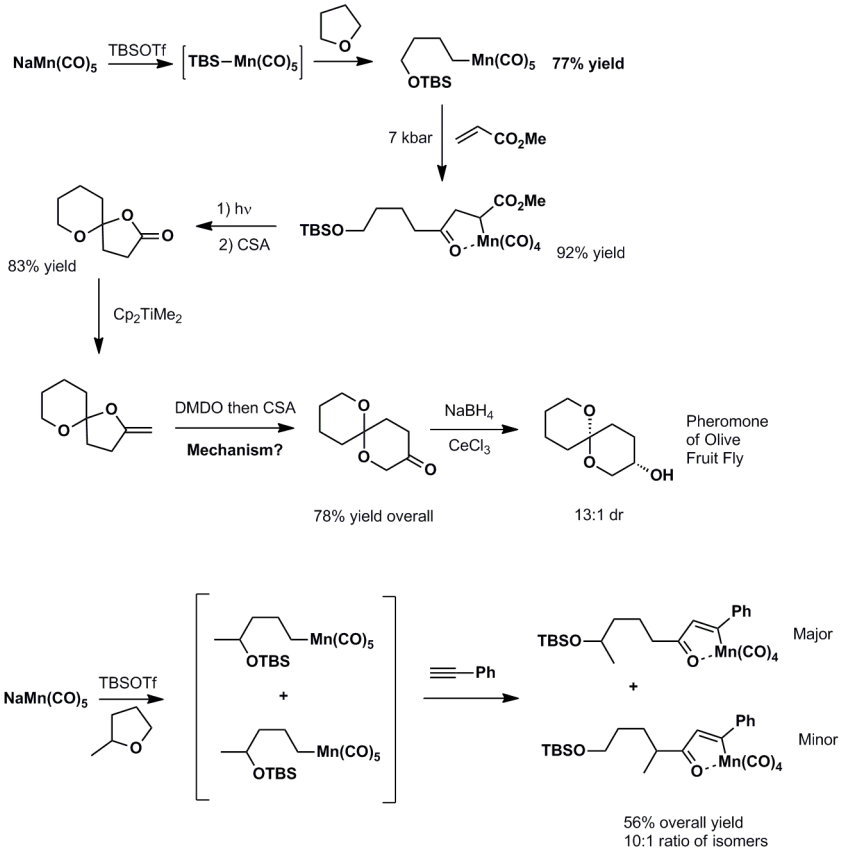
No reaction without TBAB as triflate is unstable under reaction conditions. Possible silicon "ate" complex formation?

$Bu_3SnSnBu_3$ gave inferior results.

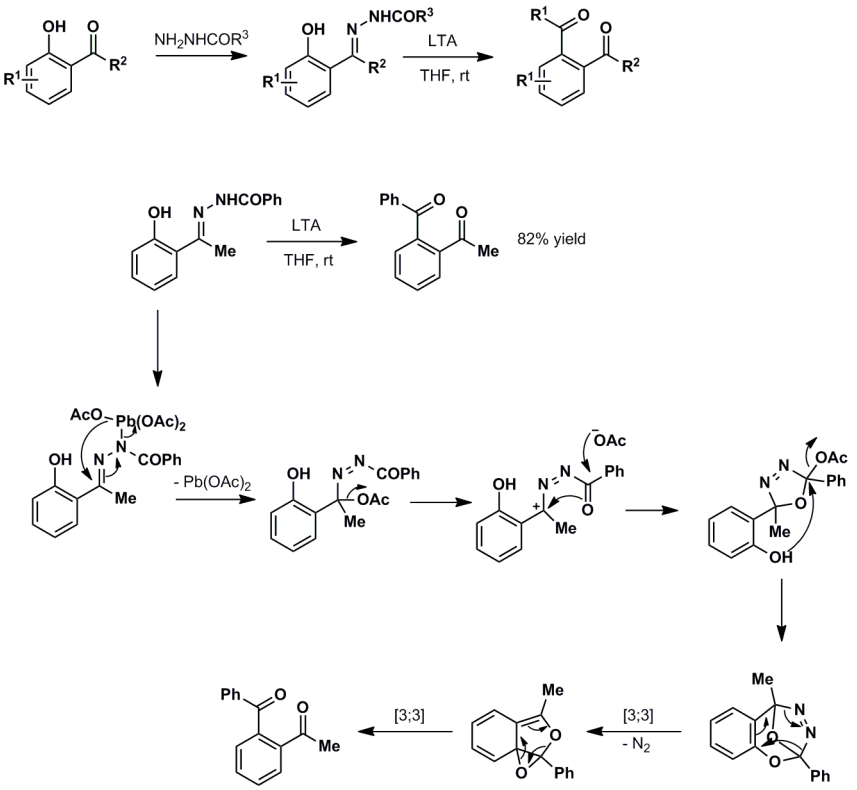
Chemistry of Substituted (2-Butene-1,4-diyl)magnesium: a Facile Approach to Complex Carbocycles, Functionalized Ketones and Alcohols, and Silicon-Containing Heterocycles
Rieke R. D., Xiong H., 3109–3118



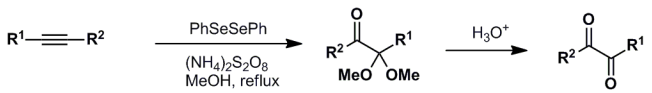
A Novel Method for the Synthesis of SpiroketalSystems. Synthesis of the Pheromones of the Common Wasp and the Olive Fruit Fly
DeShong P. and Rybczynski P. J., 3207–3210



Mechanism of the Replacement of Phenolic Hydroxyl by Carbonyl on Lead Tetraacetate Treatment of *o*-Hydroxyaryl Ketone Acylhydrazones
Katritzky A. R., Harris P. A., Kotali A., 5049–5051

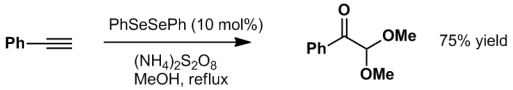


Selenium-Mediated Conversion of Alkynes into α-Dicarbonyl Compounds
Tiecco M., Testaferri L., Tingoli M., Chianelli D., Bartoli D., 4529-4534



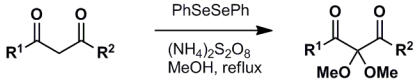
51-88% yield

Can be performed using catalytic amount of PhSeSePh (10 mol%)



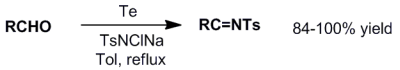
75% yield

Mechanism?

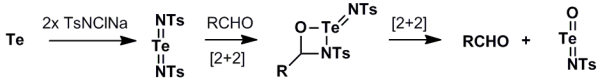


30-75% yield

A Convenient Synthesis of *N*-Tosylimines
M. Trost B. M., Marrs C., 6468–6470



84-100% yield

Very large substrate scope

Purification is just filtration