
1571 Papers in Total

Top 3 Most Cited Papers:

1) Kazlauskas, R. J., Weissfloch, 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
Novel Rearrangement of 8-Methyltricyclo[6.4.0.0^{1,6}]-dodecan-5-ones to Angularly Fused and Spiro-Annulated Tricyclic Ketones
Kakukuchi K., Ohnishi Y., Kobiro K., Tobe Y. and Odaishi Y., 463-466

Authors Propose:

Alternative Explanation:

Poor orbital overlap
Can't form carboacylation directly

Asynchronous concerted?
Baran Group Meeting

JOC Year in Review: 1991

Artiom Cernijenko

Tri(trimethylsilyl)silane as a Radical-Based Reducing Agent in Synthesis
Clark K.B., Griller O., Giese B., Koppen B., Buñuel M., Chatgilialoglu C., 678-683

TTMSS - ecological and much less toxic alternative to Bu_{3}SiH

Bond strength: Bu_{3}Si-H 74 kcal/mol, Et_{3}Si-H 90 kcal/mol, TMS_{3}Si-H 79 kcal/mol

R-X + TMS_{3}Si-H → R-H + TMS_{3}Si-X

AIBN, Tol, 80 °C, 0.5 - 2h

<table>
<thead>
<tr>
<th>R-X</th>
<th>Yield of R-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH_{3}CH_{2}CH_{2}Cl</td>
<td>68%</td>
</tr>
<tr>
<td>Cl</td>
<td>82%</td>
</tr>
<tr>
<td>Me</td>
<td>93%</td>
</tr>
<tr>
<td>CH_{3}CH_{2}CH_{2}Br</td>
<td>96%</td>
</tr>
<tr>
<td>Br</td>
<td>96%</td>
</tr>
<tr>
<td>CH_{3}(CH_{2})<em>{2}CH</em>{2}NC</td>
<td>93%</td>
</tr>
<tr>
<td>Br</td>
<td>96%</td>
</tr>
</tbody>
</table>

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

Vanadium(II)-Promoted Cyclization of 5,6-Enals or 5,6-Enols. A Stereoselective Approach to trans-2-Alkyldienecyclopentanols
Takamori Inokuchi, Hiyoshi Kawachi, Sigeno Tori, 4983-4985

[V_{2}Cl_{4}(THF)_{6}]_{2}[Zn_{2}Cl_{6}] is a one-electron reducing agent similar to Snl_{2}

\[ \text{in situ generation of } [V_{2}Cl_{4}(THF)_{6}]_{2}[Zn_{2}Cl_{6}] \]

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

[MeO\text{O}_{2}C] \text{ vs } [MeO\text{O}_{2}C]

68% yield
24:1 dr
Sml_{2} gave 69% yield with 3.1:1 dr

45% yield
5.4:1 dr
46% yield of dimer

76% yield
5.1:1 dr

CO_{2}Me

\[ \text{CO}_{2}\text{Me} \]

CHO

\[ \text{CHO} \]

TBSCO

\[ \text{TBSCO} \]

TBSCO

\[ \text{TBSCO} \]

CH_{3}\text{CHO}

\[ \text{CH}_{3}\text{CHO} \]

CN

\[ \text{CN} \]

TTMSS, AIBN over 2h

Toluene, 80 °C

90% yield
Synthetic methods and reactions. Preparation of 1,2-diketones from nonenolizable aliphatic and aromatic acyl chlorides with diethyl 1-alkyl(aryl)-1-(trimethylsiloxy)-methanophosphonates

Wu A. H. and Ohn G. A., 902-904

![Chemical structures](image)

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

A convenient method for the synthesis of 3-p-hydroxy 4-en-6-one steroids

Shamsuzzaman, Ahmad S., Khan B. Z. and Shahlibab, 1996-1937

![Chemical structures](image)

Palladium(II)-Catalyzed Carbonylation of 3-Buten-1-ols and 3-Butyn-1-ols: an Efficient Synthesis of γ-Butyro lactones

Tamaru Y., Higo M. and Yoshida Z., 1099-1105

![Chemical structures](image)
Oxovanadium(V)-Induced Oxidative Transformations of Cyclobutanones

Hirao T., Fuji T., Miyata S. and Ohshiro Y., 2264-2266

\[ VO(OEt)Cl_2 + \text{Et}_2O, \text{LiCl, rt} \rightarrow \text{43% yield} \]

\[ VO(OEt)Cl_2 + \text{BrCCl}_3 \rightarrow \text{60% yield} \]

Possible Mechanism:

\[ \text{Cl} \rightarrow \text{EtO} \rightarrow \text{Cl} \rightarrow \text{CN} \rightarrow \text{EtOCl} \rightarrow \text{VOCl}_2 \]

\[ \text{EtO} + \text{PhMe} \rightarrow \text{52% yield} \]

\[ 1) \text{BuLi, LiCl, EtOH} \rightarrow \text{Cl} \rightarrow \text{EtO} \rightarrow \text{Bu} \rightarrow \text{76% yield} \]

\[ 2) \text{VO(OEt)Cl}_2, \text{-78 °C to rt} \]

\[ \text{BuLi, LiCl, EtOH} \rightarrow \text{EtO} \rightarrow \text{Bu} \rightarrow \text{42% yield} \]

Synthesis of (\(\text{H}^+\))\(\text{L}^+\)-Lycorane via a Stereocontrolled Organopalladium Route

Baeckvall J. E., Andersson P. G., Stone G. B. and Adolf Gogoll A., 2985-2993

\[ \text{NHCOBn} + \text{PdOAc}_2 (5 \text{ mol%), LiCl, \text{ rt}} \rightarrow \text{95% yield} \]

\[ \text{Benzoylquinone acetone H}_2\text{OAc, rt} \rightarrow \text{MgBr,Li}_2\text{CuCl}_2 (\text{cat.}) \rightarrow \text{THF} \rightarrow \text{77% yield} \]

Possible Explanation:

\[ \text{Ar is equatorial} \]

Severe A\(1,2\) Strain

\[ \text{Ar} \]

A\(1,2\) Strain minimized
Baran Group Meeting

JOC Year in Review: 1991
Artiom Cernijenko

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

\[
\begin{align*}
\text{Me}_{2}COH & \xrightarrow{\text{DMF, HOTI}} \text{Me} + \text{H} \\
& 53\% \text{ yield} \quad 47\% \text{ yield}
\end{align*}
\]

Me_{2}COH, PhCH_{2}OH, Ph_{2}CHOH, and Ph_{3}COH gave almost identical results.

BEt_{3}HOTI gave around 10\% yield of R-ET and 90\% R-H for the same substrates under identical conditions. B(n-Pr)_{3}HOTI gave only traces (\approx 0.1\% yield) of R-nPr and almost exclusively R-H.

The Use of Silyltriorganostannanes, \text{R}_{3}SiSnR'\text{S}_{3}, in Organic Synthesis. A Novel Palladium-Catalyzed Tandem Transmetalation-Cyclization Reaction
Morin M., Keneta N., Shibasaki M., 3486–3493

\[
\begin{align*}
\text{Br} & \xrightarrow{\text{Bu}_{3}SnSiMe}_{3} \xrightarrow{\text{Pd} \left( \text{PPPh}_{3} \right) \text{Cl}, \text{L}_{2} \text{CO}_{3}, \text{TBAB, Tol} \atop 110 \degree \text{C}} \text{EtO}_{2} \text{C} \\
& 70\% \text{ yield}
\end{align*}
\]

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

\[
\begin{align*}
\text{Br} & \xrightarrow{\text{Bu}_{3} \text{SnSiBu}_{3}} \xrightarrow{\text{PdOTI, TBAB}} \text{Bu}_{3} \text{SnSiBu}_{3} \\
& 31\% \text{ yield}
\end{align*}
\]

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

\[
\begin{align*}
\text{MgCl}_{2} & \xrightarrow{\text{Li, Naphthalene}} \text{Mg}^{+} \xrightarrow{\text{Preparation of highly reactive magnesium}} \\
\text{Mg}^{+} & \xrightarrow{\text{THF, rt}} \text{Mg}^{+} \xrightarrow{\text{Cl} \xrightarrow{\text{Cl} \text{DCM, -78 \degree C to rt}} \text{Cl} \text{Ph} \text{Ph} \xrightarrow{\text{Cl} -78 \degree C to rt} \text{Ph} \text{Ph} \\
& 81\% \text{ yield}
\end{align*}
\]

\[
\begin{align*}
\text{Mg}^{+} & \xrightarrow{\text{THF, rt}} \text{Mg}^{+} \xrightarrow{\text{Br} -78 \degree C to rt} \text{Mg}^{+} \xrightarrow{\text{Br} -35 \degree C} \text{Br} \\
& 72\% \text{ yield}
\end{align*}
\]

\[
\begin{align*}
\text{Br} & \xrightarrow{\text{CN}} \text{CN} \xrightarrow{-78 \degree C to rt} \text{CN} \\
& 75\% \text{ yield}
\end{align*}
\]

\[
\begin{align*}
\text{Br} & \xrightarrow{\text{PhCOCl} \atop 0 \degree C} \text{Br} \xrightarrow{\text{rt to reflux}} \text{Br} \\
& 60\% \text{ yield}
\end{align*}
\]
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 Acetylhydrazones

83% yield
1) hv
2) CSA
CO₂THMe₂
DMDO then CSA
Mechanism?

78% yield overall
13:1 dr
56% overall yield
10:1 ratio of isomers
**Selenium-Mediated Conversion of Alkynes into α-Dicarbonyl Compounds**

Tiecco M., Testaferrri L., Tingoli M., Chianelli D., Bartoli D., 4529-4534

\[ R^1\equiv\equiv R^2 \xrightarrow{\text{PhSeSePh}} R^1\equiv\equiv R^2 \xrightarrow{\text{H}_2\text{O}^+} R^2\equiv\equiv R^1 \]  

51-88% yield

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

\[ \text{Ph} \equiv \equiv \xrightarrow{\text{PhSeSePh} (10 \text{ mol})} \text{Ph} \equiv \equiv \]  

75% yield

**A Convenient Synthesis of N-Tosylimines**

M. Trost B. M., Mann C., 6468-6470

\[ \text{RCHO} \xrightarrow{\text{Te} \\text{TsNCINa}} \text{RC=NTs} \]  

84-100% yield

Very large substrate scope

Purification is just filtration

\[ \text{Te} \xrightarrow{2\times \text{TsNCINa}} \text{NTs} \xrightarrow{\text{RCHO} \ [2+2]} \text{RO} \xrightarrow{\text{NTs}} \text{RCHO} + \text{Te} \]