Direct Synthesis of Ketones from Primary Alcohols and 1-Alkenes
Chul-Ho Jun, Chan-Woo Huh, Sang-Jin Na; 145–147.

\[
\begin{align*}
R^1\text{OH} + \text{R}^2\text{O} & \text{H} \rightarrow \text{R}^1\text{C}=\text{R}^2\text{H} \\
(100 \text{ mol}) & \text{PPh}_3 (16.5 \text{ mol}) \\
\text{RhCl}_3\cdot\text{(H}_2\text{O}_n & (3.3 \text{ mol})} \\
130 \, ^\circ\text{C, 12 h,} & \text{typically 66–86\%} \\
\end{align*}
\]

Proposed catalytic cycle:

Random Events of 1998

Nobel laureate Valadimir Prelog (of Cahn-Ingold-Prelog convention fame) dies
Nobel laureate Kenichi Fukui (frontier molecular orbitals) dies
Frank Sinatra dies
Bear Grylls climbs Mount Everest (probably drinks own urine in the process)
Russia launches the first segment of the International Space Station into space
Rome Statue of the Internation Criminal Court adopted by UN (US voted against)
Google founded
Legend of Zelda: Ocarina of Time released
Metallated 2-Alkenylsulfoximides in Asymmetric Synthesis:
Diastereoselective Preparation of Highly Substituted Pyrrolidine Derivatives
Michael Reggelin, Timo Heinrich; 2883–2885.

Biosynthesis:

Expeditious Enantioselective Biomimetic Synthesis of the *Nitraria* Alkaloids
(+)–Isonitramine and (−)–Sibirine
David François, Marie-Christine Lallemand, Mohamed Selkli, Alain Tomas, Nicole Kunesch, Henri-Philippe Husson; 104–105.

**Diastereoselectivity in cyclization:**

\[ \text{Favored} \]
Three-Component Coupling Reactions of Alkyl Iodides, 1,3-Dienes, and Carbonyl Compounds by Sequential Generation of Radical and Anionic Species with CrCl₂
Kazuhiko Takai, Naoto Matsukawa, Akira Takahashi, Takafumi Fujii; 152–155.

R¹-I + Me⁺ + MeOH → CrCl₂ (2 equiv) → R¹-Me + R³-Me

dr typically 71–98% 80:20–98:2

R¹ = iPr, tBu
R² = Me, H
R³ = Ph, Cy, nC₈H₁₇

Stereochemistry when R² = H:

R¹-I → R¹⁺ → R¹-Me

Decreased diastereoselectivity when R²=Me:

Amine Additives Greatly Expand the Scope of Asymmetric Hydroisilation of Imines

N → R¹-N → R² → iBuNH₂ → HN-R³

86–97% typically 91–99% ee

Slow addition (over 2.5 h) of iBuNH₂ required:

Alternative explanation for enhancement:
**ACIE: 1998 Year in Review**

### Exceptionally Simple Enantioselective Syntheses of Chiral Hexa- and Tetracyclic Polyprenoids of Sedimentary Origin
E. J. Corey, Guanglin Luo, Linus Shouzhong Lin; 1126–1128.

1. MeCl₂, DCM
2. HFₐq, MeCN
3. 10% KOH, MeOH, Δ, 32% over 3 steps

### Stereoselective Allylic C-H Activation with Tertiary Alkylboranes:
A New Method for Preparing Cycloalkyl Derivatives with Three Adjacent Stereocenters
Frédéric Lhermitte, Paul Knochel; 2460–2461.

- **NaOH**
  - H₂O₂
  - 92%
  - 1. BCl₃
  - 2. BnN₃
  - 81%

**Mechanism?**

- BH₃•THF
  - 50 °C
  - via:
  - BH₂

**Mechanism?**

- CuCN•2LiCl
  - 3. EX

**EX = BrCH₂CH=CH₂** 61%
- PhCOCl 49%
- BrC=CPh 53%
- BrC=CTMS 40%

### Other interesting results:

1. BH₃•THF
2. BCl₃
3. BnN₃

- 60%

1. BH₃•THF
2. PhC=O
3. NaOH

- 90%
A Short Synthesis of (±)-Matrine
Laurent Boiteau, Jean Boivin, Annie Liard, Béatrice Quiclet-Sire, Samir Z. Zard; 1128–1131.

Stereocontrolled Routes to Bridged Ethers by Tandem Cyclizations
Charles M. Marson, Jon Campbell, Michael B. Hurthouse, K. M. Abdul Malik; 1122–1124.

Mechanism:

More examples:
The Total Synthesis of Spirotroprostacin A
Scott D. Edmondson, Samuel J. Danishefsky; 1138–1140.

Diastereoselective Synthesis of Highly Substituted Five-Membered-Ring Oxygen Heterocycles by Zirconocene-Mediated C-C Coupling Reactions
Dieter Enders, Manfred Kroll, Gerhard Raabe, Jan Runsink; 1673–1675.
Fixation of Atmospheric Nitrogen:
Synthesis of Heterocycles with Nitrogen as a Nitrogen Source
Miwako Mori, Katsutoshi Hori, Masaya Akashi, Masanori Hori, Yoshihiro Sato,
Mayumi Nishida; 636–637.

$$\text{TiCl}_4 \xrightarrow{\text{N}_2 \text{(dry air)}} \text{TMSCl, Li} \quad \begin{array}{ccc}
\text{CITi=NTMS} \\
\text{Cl}_2\text{TN(TMS)}_2 \\
\text{N(TMS)}_3
\end{array}
\xrightarrow{\text{substrate}} \quad \text{CsF, THF, } \Delta 
\xrightarrow{\text{heterocycle}}$$

<table>
<thead>
<tr>
<th>substrate</th>
<th>heterocycle</th>
<th>yield</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>86% (pure N\textsubscript{2})</td>
</tr>
<tr>
<td></td>
<td></td>
<td>56% (dry air)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>51% (pure N\textsubscript{2})</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37% (dry air)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>using Ti(O\textsubscript{2}Pr\textsubscript{4}) \textsubscript{4}</td>
</tr>
<tr>
<td></td>
<td></td>
<td>82% (pure N\textsubscript{2})</td>
</tr>
<tr>
<td></td>
<td></td>
<td>72% (dry air)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**althyrtin A (spongistatin 1)**

**ciguatoxin, F–M framework**
Sasaki and Tachibana, 965–969.

**terpenin**
Kawada and Ohtani, 973–975

**(+)-preussin**
Bach, 3400–3402.

**(+)-coccine**
Pearson, 1724–1726.

**(-)-halomon**
Mioskowski, 2085–2087.
More syntheses not covered:

vancomycin aglycon
Evans, 2700–2704 and 2704–2708.

alkannin and shikonin
Nicolaou, 839–841.

everninomicin A₈B(A)C framework
Nicolaou, 1874–1876.

vancosamine derivative and evernitrose
Nicolaou, 1871–1874.

sarcodictyin B
Nicolaou, 1418–1421.

eleutherobin
Danshiefsky, 185–186 and 789–792.

alkannin and shikonin
Nicolaou, 2534–2537

(S)-zearalenone
Danshiefsky, 2675–2678.

epothilone B
Danshiefsky, 2675–2678.

lactacycstin
Coery, 1676–1679.

macrolactin A
Carreira, 1261–1263.

[14]-, [15]-, [17]-, and [18]epothilones A
Nicolaou, 81–83.

himastatin (reassignment and monomer)
Danshiefsky, 2993–2995 and 2995–2998.

CP molecules (synthetic studies)

epothilone E
Nicolaou, 84–87.