**Synthesis Alerts** is a monthly feature to help readers of Synthesis keep abreast of new reagents, catalysts, ligands, chiral auxiliaries, and protecting groups which have appeared in the recent literature. Emphasis is placed on new developments but established reagents, catalysts etc are also covered if they are used in novel and useful reactions. In each abstract, a specific example of a transformation is given in a concise format designed to aid visual retrieval of information.

**Synthesis Alerts** is a personal selection by:
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**Ruthenium(II) Complex**

*Reagent A catalyses the intramolecular [5+2] cycloaddition of cyclopropyl enynes.*

![Image of Ruthenium(II) Complex]


11 examples (yields 69–93%).

**Rhodium Cyclooctadienylchloride Dimer/Bis(p-sulfonatophenyl)phenylphosphine Dipotassium Salt (TPPDS)**

*The title reagent pair catalyse coupling reactions of aryloboronic acids to olefins in aqueous media.*

![Image of Rhodium Cyclooctadienylchloride Dimer/Bis(p-sulfonatophenyl)phenylphosphine Dipotassium Salt (TPPDS)]


17 examples (yields 20–88%).

**Dirhodium(II) Carboxamidate**

*The title reagent promotes enantioselective Hetero-Diels–Alder reactions.*

![Image of Dirhodium(II) Carboxamidate]


3 examples (yields 41–82%, %ee 81–95%).

The journals regularly covered by the abstractors are:
- Angewandte Chemie International Edition
- Bulletin of the Chemical Society of Japan
- Chemical Communications
- Chemistry A European Journal
- Chemistry Letters
- Collection Czechoslovak Chemical Communications
- European Journal of Organic Chemistry
- Helvetica Chimica Acta
- Heterocycles
- Journal of the American Chemical Society
- Journal of Organic Chemistry
- Organic Letters
- Organometallics
- Perkin Transactions I
- Synlett
- Synthesis
- Tetrahedron
- Tetrahedron Asymmetry and Tetrahedron Letters
<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Chiral Bisoxazoline</th>
<th>Iron (II) Chloride</th>
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<tbody>
<tr>
<td>The title reagent catalyses the enantio-</td>
<td>The title reagent catalyses the enantio- and diastereoselective aza-Henry</td>
<td>The title reagent catalyses intramolecular nitrogen transfer in alkenyloxy-</td>
</tr>
<tr>
<td>and diastereoselective aza-Henry reaction</td>
<td>reaction between silyl nitronates and α-amino esters to generate β-nitro-α-</td>
<td>carbonyl azides to give the corresponding oxazolidinones.</td>
</tr>
<tr>
<td>between silyl nitronates and α-amino esters</td>
<td>amino esters.</td>
<td></td>
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<td></td>
<td><img src="image1.png" alt="Chiral Bisoxazoline Catalyst" /></td>
<td><img src="image2.png" alt="Iron (II) Chloride Catalyst" /></td>
</tr>
<tr>
<td></td>
<td>2 examples (yields 87–94%, %ee 83–95%).</td>
<td>11 examples (yields 33–82%, %de 2–99%).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Catalyst</th>
<th>(R,R)-Di-m-oxo Ti(salen)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Di-m-oxo Ti(salen)" /></td>
<td>7 examples (yields 72–93%, %ee 92–99%).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Rhenium Trioxide</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4.png" alt="Rhenium Trioxide Catalyst" /></td>
<td>8 examples (yields 70–96%).</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Iridium-Pybox Catalyst</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5.png" alt="Iridium-Pybox Catalyst" /></td>
<td>10 examples (yields 0–68%, %ee 76–96%, %de 66–90%).</td>
</tr>
</tbody>
</table>
### Chiral Ketone

The title reagent catalyses the enantioselective epoxidation of terminal olefins using oxone.

![Chiral Ketone](image)


10 examples (yields 61–100%, %ee 71–85%).

### (S)-VAPOL

The title ligand is applied in the asymmetric zirconium-catalysed imino aldol reaction.

![VAPOL Ligand](image)


7 examples (yields 78–100%, %ee 36–99%).

### (S)-(Di-pyridin-2-ylmethyl)-methyl-(1-phenylethyl)-amine

The title ligand, when complexed with manganese, catalyses the oxidation of sulfides to sulfoxides using hydrogen peroxide.

![Ligand](image)


6 examples (yields 48–55%, %ee 5–18%).

### Benzene-based tripodal oxazoline

The title reagent can be used as a ligand in the enantioselective catalytic Michael addition of methyl phenylacetate to methyl acrylate.

![Ligand](image)


1 example (yield 83%, %ee 82%).

### Tin(IV) Chloride

The title reagent promotes asymmetric synthesis of β-mercapto carboxylic acid derivatives by intramolecular sulfur transfer in N-enoyl oxazolidine-2-thiones.

![Reagent](image)


15 examples (yields 56–98%, %de 30–96%).
### (Cyanomethyl)trimethylphosphonium Iodide Reagent

The title reagent promotes the formation of thioethers from thiols and aliphatic alcohols.


![Chemical structure](image1)

Reagent A (1.2 equiv) DIPEA (1.3 equiv) PrOH (1.3 equiv) EtCN, 92 °C, 14 h 81%

8 examples (yields 38–84%).

### Lithium Dibutylisopropylmagnesate Reagent

The title reagent is used for the selective halogen-magnesium exchange of alkenyl halides with retention of configuration of the double bond.


![Chemical structure](image2)

Reagent i-PrBu2MgLi A

(a) A (1.2 equiv) THF, 0 °C, 1 h

(b) Me3SiCl (3.6 equiv) –78 °C, 0.5 h, 93%

44 examples (yields 24–99%).

### Cerium Trichloride Heptahydrate/Sodium Iodide Reagent

The title reagent is used in the selective deprotection of tert-butyl amino acids in the presence of N-Boc protected amines.


![Chemical structure](image3)

Reagent CeCl3 ⋅ 7H2O A NaI B

A (1.5 equiv) B (1.3 equiv) MeCN, ∆, 6 h 99%

11 examples (yields 75–99%).

### Dichlorogallium Hydride Reagent

The title reagent can be used for the triethylborane-induced radical cyclisation of halo acetals.


![Chemical structure](image4)

Reagent HGaCl2 A

A (1.5 mmol) Et3B (0.2 mmol) THF, 0 °C, 3 h 87%

dr = 70:30

10 examples (yields 79–99%, %de 0–68%).

### Stryker’s Reagent Reagent

The title reagent can be used for the tandem conjugate reduction-aldol cyclisation of enediones to form the corresponding five- and six-membered carbocycles in good yields.


![Chemical structure](image5)

Reagent [(Ph3P)CuH]6 A

A (38 mol%) PhMe, –40 °C, 1 h 80%

14 examples (yields 19–93%).