**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: Elyse Bourque, Robert Chow, Jennifer Delaney, Marcel de Puit and Sukhjinder Uppal, Department of Chemistry, Leeds University, Leeds, LS2 9JT, UK.

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**Ruthenium(II) Complex**

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


11 examples (yields 69–93%).

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

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


17 examples (yields 20–88%).

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**Dirhodium(II) Carboxamidate**

The title reagent promotes enantio-selective Hetero-Diels–Alder reactions.


3 examples (yields 41–82%, %ee 81–95%).
### Chiral Bisoxazoline Catalyst

The title reagent catalyses the enantio- and diastereoselective aza-Henry reaction between silyl nitronates and α-amino esters to generate β-nitro-α-amino esters.


<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Reagents</th>
<th>Conditions</th>
<th>Products</th>
<th>Yields/Selecs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image1" alt="Catalyst Structure" /></td>
<td>THF, -100 °C, 1 h</td>
<td><img src="image2" alt="Product Structure" /></td>
<td>94% er = 98:2, dr = 25:1</td>
</tr>
<tr>
<td></td>
<td>2 examples</td>
<td>yields 87–94%, %ee 83–95%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Iron (II) Chloride Catalyst

The title reagent catalyses intramolecular nitrogen transfer in alkenyloxy-carbonyl azides to give the corresponding oxazolidinones.


<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Reagents</th>
<th>Conditions</th>
<th>Products</th>
<th>Yields/Selecs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image3" alt="Catalyst Structure" /></td>
<td>EtOH, 0 °C → r.t., 21 h</td>
<td><img src="image4" alt="Product Structure" /></td>
<td>72% er = 97:3</td>
</tr>
<tr>
<td></td>
<td>11 examples</td>
<td>yields 33–82%, %de 2–99%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (R,R)-Di-m-oxo Ti(salen) Catalyst

The title reagent, in the presence of urea-H$_2$O$_2$, catalyses the asymmetric oxidation of sulfides to sulfoxides in good yields and with high enantioselectivities.


<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Reagents</th>
<th>Conditions</th>
<th>Products</th>
<th>Yields/Selecs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image5" alt="Catalyst Structure" /></td>
<td>MeOH, 0 °C, 1 d</td>
<td><img src="image6" alt="Product Structure" /></td>
<td>91%, er = 97:3</td>
</tr>
<tr>
<td></td>
<td>7 examples</td>
<td>yields 72–93%, %ee 92–99%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Rhenium Trioxide Catalyst

The title reagent catalyses olefin epoxidation by bis(trimethylsilyl) peroxide (BTSP).


<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Reagents</th>
<th>Conditions</th>
<th>Products</th>
<th>Yields/Selecs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image7" alt="Catalyst Structure" /></td>
<td>CH$_2$Cl$_2$, 0 °C, 4h</td>
<td><img src="image8" alt="Product Structure" /></td>
<td>81%</td>
</tr>
<tr>
<td></td>
<td>8 examples</td>
<td>yields 70–96%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Iridium-Pybox Catalyst

The title reagent converts trialkylsilanes, methyl acrylate and certain aldehydes to the corresponding reduced aldol products with good enantio- and diastereocentrol.


<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Reagents</th>
<th>Conditions</th>
<th>Products</th>
<th>Yields/Selecs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image9" alt="Catalyst Structure" /></td>
<td>CH$_2$=CHCO$_2$Me (1.2 equiv)</td>
<td><img src="image10" alt="Product Structure" /></td>
<td>68% er = 97:3 dr = 7:1</td>
</tr>
<tr>
<td></td>
<td>10 examples</td>
<td>yields 0–68%, %ee 76–96%, %de 66–90%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Chiral Ketone

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

![Chiral Ketone](image1)


**Catalyst**

A (15 mol%) Oxone (1.8 equiv) K₂CO₃ (4 equiv) Buffer (0.2 M K₂CO₃/AcOH, pH 8) DME–DMM (3:1), –10 °C, 3.5 h

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

### (S)-VAPOL

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

![VAPOL](image2)


**Ligand**

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.

![Di-pyridin-2-ylmethyl]-methyl-(1-phenylethyl)-amine](image3)


**Ligand**

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.

![Benzene-based tripodal oxazoline](image4)


**Ligand**

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.

![Tin(IV) Chloride](image5)


**Reagent**

SnCl₄

A (1.5 equiv) CH₂Cl₂, –78 °C

b) H₂O

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

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


![Reaction Scheme](image)

8 examples (yields 38–84%).

### Lithium Dibutylisopropylmagnesate

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


![Reaction Scheme](image)

44 examples (yields 24–99%).

### Cerium Trichloride Heptahydrate/Sodium Iodide

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


![Reaction Scheme](image)

11 examples (yields 75–99%).

### Dichlorogallium Hydride

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


![Reaction Scheme](image)

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

### Stryker’s 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.


![Reaction Scheme](image)

14 examples (yields 19–93%).