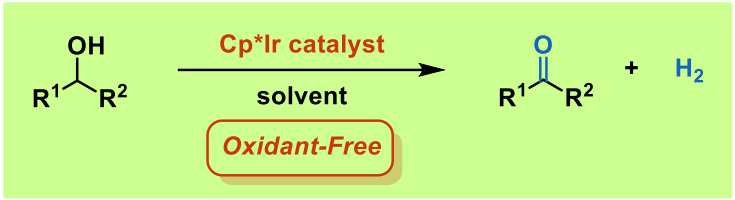
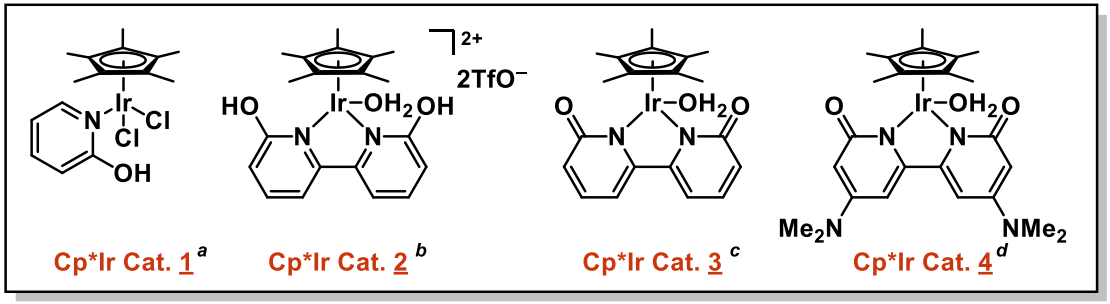
Dehydrogenative Oxidation

Dehydrogenative Oxidation Catalysts



- Preparation of ketones from secondary alcohols
- Preparation of aldehydes from primary alcohols
- Preparation of carboxylic acids from primary alcohols (under basic conditions)
- No co-oxidant required (dehydrogenative oxidation)

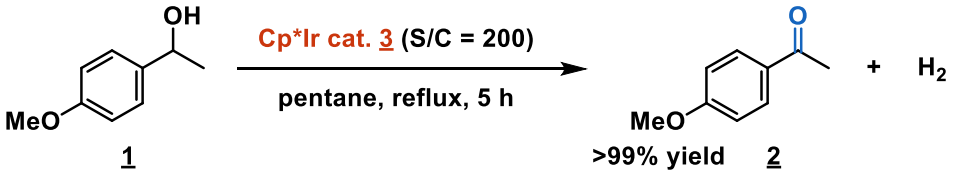
Iridium Complexes for Dehydrogenative Oxidation



[a]Fujita, K.; Tanino,N.; Yamaguchi, R. *Org. Lett.* 2007, *9*, 109–111.
[b]Kawahara, R.; Fujita, K.; Yamaguchi, R. *J. Am. Chem. Soc.* 2012, *134*, 3643–3646.
[c]Kawahara, R.; Fujita, K.; Yamaguchi, R. *Angew. Chem. Int. Ed.* 2012, *51*, 12790–12794.
[d]Kuwahara, M.; Nishioka, M.; Yoshida, M.; Fujita, K. *ChemCatChem* 2018, *10*, 3636–3640.

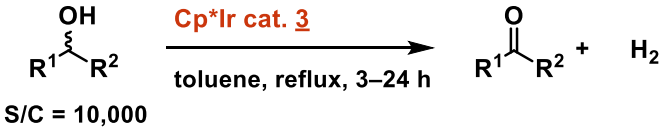
Please see the brochure for details https://www.kanto.co.jp/dcms_media/other/Iridium%20catalyst%20for%20oxidation_OFC-06E.pdf

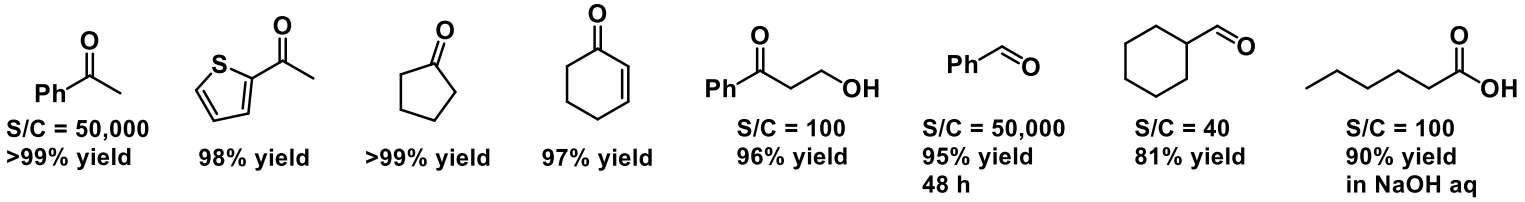
Typical Procedure



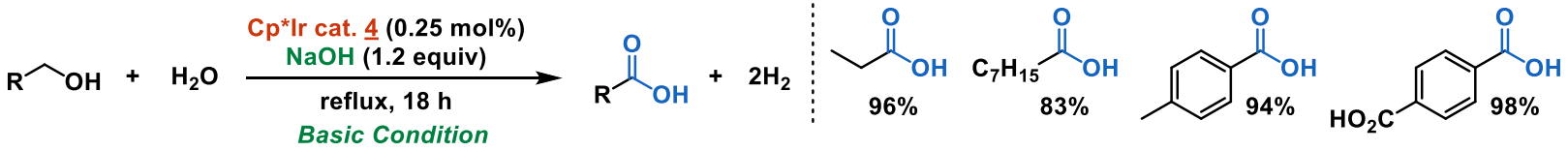
In a round bottom flask, **Cp*Ir Cat. 3** (0.5 mol%), pentane (3 mL), and alcohol **1** (1.0 mmol) were placed under air. The mixture was stirred under vigorous reflux for 5 h to get rid of H_2. After evaporation of the solvent, the residue was purified by flash column chromatography to afford ketone **2** (99%).

Substrate Scope



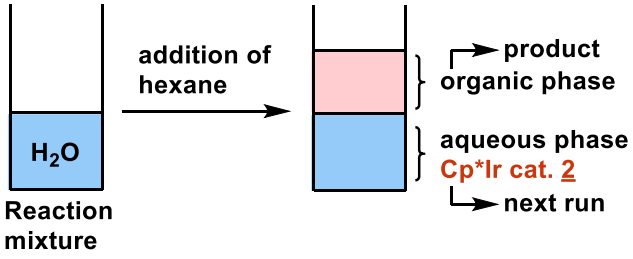


Oxidation of Primary Alcohol to Carboxylic Acid

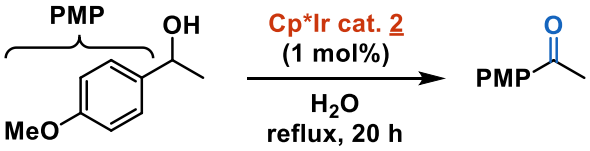


Reuse of Cp*Ir cat.

The method for reusing of Cp*Ir cat. 2.

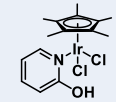
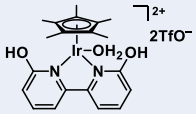
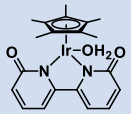
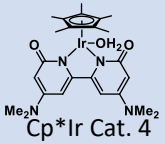


Oxidation with reused Cp*Ir cat. 2.



reuse	1	2	3	4	5	6	7	8
yield (%)	98	97	96	95	95	96	95	94

The use of a water-soluble **Cp*Ir cat. 2** made it easy to separate the organic product from the catalyst by a simple phase separation: After the oxidation, hexane was added to the system, and the organic and aqueous phases were separated. The aqueous phase including the recovered **Cp*Ir cat. 2** could be subjected to the next run.

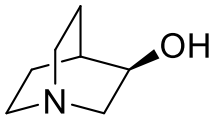
Structure	Product No.	Package	Structure	Product No.	Package
Oxidation Catalysts					
 Cp*Ir Cat. 1	18017-68	100 mg	 Cp*Ir Cat. 2	01062-68	100 mg
	18017-65	1 g		01062-95	500 mg
 Cp*Ir Cat. 3	01063-68	100 mg	 Cp*Ir Cat. 4	01159-65	500 mg
	01063-95	500 mg			

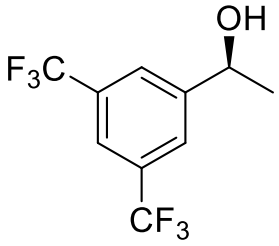
We provide not only reagents, but also bulk chemicals, contract synthesis, contract development and catalyst screening services. We are ready to help your research and industrial production.

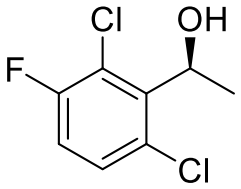
Our Products (Catalysts and Ligands)
https://www.kanto.co.jp/english/products/organics/organic03.html

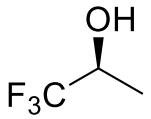
KANTO CHEMICAL CO.,INC.

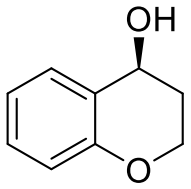
Product Examples We can Offer

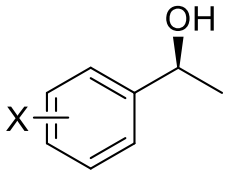


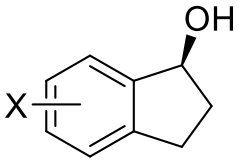


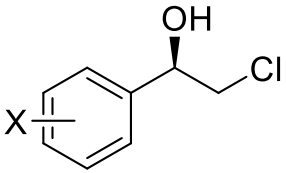


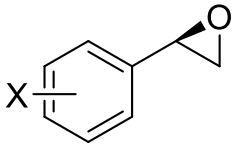


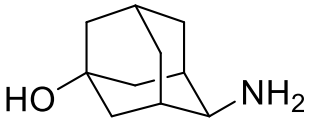


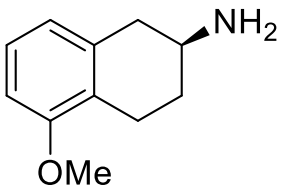


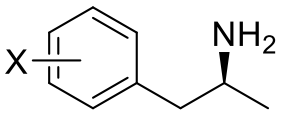


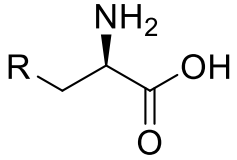


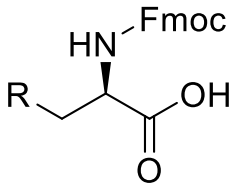


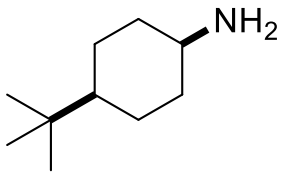






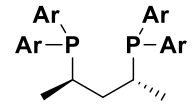




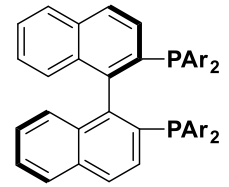


- We can also supply these compounds in bulk scale.
- Both enantiomers are available.
- Only a part of products is listed here.
- If you need other compounds, please feel free to contact us.

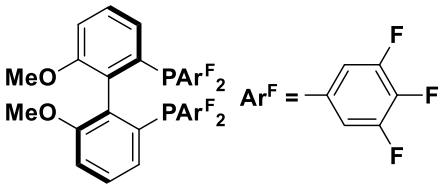
Ligand Examples We can Offer

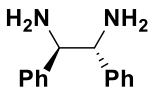


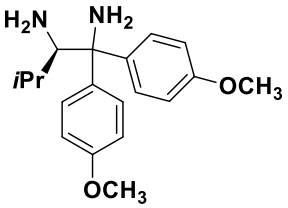
Ar = 3,5-*i*Pr$_2$C$_6$H$_3$
3,5-(CH$_3$)$_2$C$_6$H$_3$
Ph

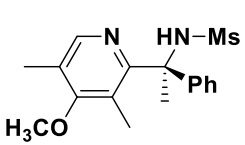


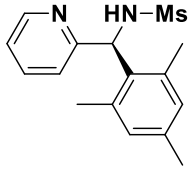
Ar = 3,5-(CH$_3$)$_2$C$_6$H$_3$
4-CH$_3$C$_6$H$_4$
Ph

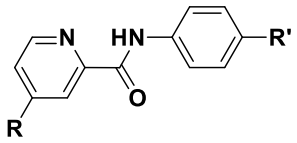


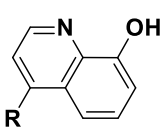


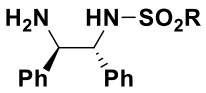




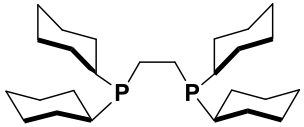


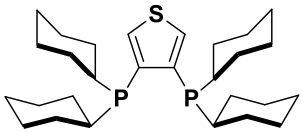


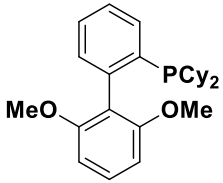


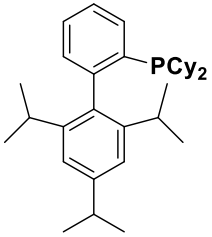


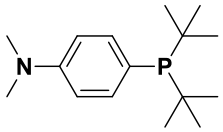
R = 4-(CH$_3$)C$_6$H$_4$
CH$_3$
Bn
2,6-(CH$_3$)$_2$Bn
*i*Bu
10-Camphor











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